STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
Office of Conservation and Coastal Lands
Honolulu, Hawaii

REF:OCCL:DH

CDUA: OA-3525

Acceptance Date: August 17, 2009
180-Day Exp. Date: February 13, 2010

December 11, 2009

Board of Land and
Natural Resources
State of Hawaii
Honolulu, Hawaii

REGARDING: Conservation District Use Application (CDUA) OA-3525 and Request to Expand Lease Area of State Marine Waters for Marine Activities for Hukilau Foods LLC

STATUTORY AUTHORITY: Hawaii Ocean and Submerged Lands Leasing Act, Chapters 190D and 183C, Hawaii Revised Statutes (HRS)

APPLICANT: John R. Cates, Hukilau Foods, P.O. Box 335, Kailua, Hawaii 96734

LANDOWNER: State of Hawaii, Department of Land and Natural Resources (DLNR)

LOCATION: Two Miles Offshore Ewa Beach, Island of Oahu

TMK: State Marine Waters

AREA OF USE: 61.59 Acres (2,679,165 square feet)

AREA EXCLUSIVE USE: 2 acres

SUBZONE: Resource

CONSERVATION DISTRICT USE PERMIT (CDUP) OA-2989

On January 26, 2001, the Board of Land and Natural Resources (BLNR) approved Cates International (now Hukilau Foods) CDUP to operate a 28.077 acre (1,221,350 square feet) moi (*Polydactylus sexfilis*) aquaculture farm two miles offshore Ewa Beach (**Exhibit 1**). The DLNR Land Division assigned General Lease No. S-5654 (January 21, 2001). Currently, the moi farm utilizes the surface, seafloor and water column of State marine waters and submerged lands. Hukilau Foods proposes to expand the moi farm and boundaries and is therefore submitting for processing a CDUA.

DESCRIPTION OF AREA AND CURRENT USE:

Currently, Hukilau Foods operates four (4) Sea Station (SS) 3000 cages (cage volume $3000m^{3)}$. Total production capacity is 1.2 million pounds a year, with multiple crops. Cages are submerged below the surface 30 to 40 feet in average water depths of 140 feet. Stocking, harvesting, and maintenance activities occur from surface boats and the feed barge with SCUBA diver assistance. The farm's North-South dimensions are 782 feet and East-West dimensions are 1564 feet. The farm is located two miles off Ewa Beach and the Pearl Harbor entrance, and five to six miles to the west of Barbers Point and Campbell Industrial Park. The proposed project will replace and expand the current farm production of 1.2 million pound per year to 5 million pounds per year (**Exhibit 2**).

ENVIRONMENTAL SETTING

The prevailing weather pattern consists of northeast trade winds, which blow 80 % of the time; average wind speed is 8 to 12 knots. Kona winds (southeast and southwest winds) occur 20 % of the time.

Water currents along Oahu's south shore experience a predominant East to West current flow; range 0.5 to 2 knots. During the semi-diurnal tidal changes (2 x daily) the velocity diminishes and in some areas may reverse or rotate in a circular pattern. A 2002 test in the project area indicates the current has rarely exceeded one (1) knot.

Diver surveys indicate the ocean terrain in the project area consists of a moderately sloping, barren, sandy bottom. Divers inspected a circular area emanating from the area's center (from 1800 to 2000 feet); for every twelve (12) feet the depth drops (1) one foot. Water depths at the project area are between 150 feet and 170 feet.

As part of CDUP HA- 2989 terms and conditions water quality parameters have been observed for the last seven (7) years. Results indicate the values from sampling (surface, mid-depth, near the bottom) are less than the Department of Health (DOH), Clean Water Branch (CWB) "wet criteria;" ambient ocean conditions are found at the edge of the National Pollutant Discharge Elimination System (NPDES)/Zone Of Mixing (ZOM).

FLORA AND FAUNA

The closet coral reef is located approximately 1800 feet to the north-northwest looking toward shore. Coral heads sit on a ledge that rises sharply from a depth of 85 feet to 50 feet. Coral covers 8% to 12% of the total area at the top; coral cover increases going shoreward. A water quality station was placed near the reef to measure effects from the fish farm indicate sampling results showed no effect.

Benthic sampling (i.e species/community analysis, crustacean, priapulids, supnculans) required under CDUP OA- 2989 surveyed control sites underneath, near, 1082 feet upcurrent and 1170 feet downcurrent from the farm. Two Polychaetes species, *Symelmis acruminata,* and *Euchone*

sp. B dominated the control sites. In addition, *Pionosyllis hertecirrata* a widespread species around Oahu was found in limited abundance.

Flora and fauna species range from transient species (present for minutes) to resident species (present for days to weeks) at the farm; species may appear and disappear on a semi-regular and irregular basis. The cage provides a substrate for micro and macro algae plants, and benthic invertebrates. It also acts as a fish aggregating device (FAD). Reef fish, pelagic herbivorous fish, carnivorous fish, and omnivorous fish (i.e. broomtail file fish (*Aluterus scriptus*), mackerel scad (*Decapterus macarellus*), false albacore tune (*Euthynnus alletterates*), blu ulua (*Caranx melampygus*), amberjack (*Seriola dumerilli*), butterfly fish (*Chaetodon* sp.), surgeon fish (*Acanthurus* sp.), sandbar sharks (*Carcharhinus plumbeus*) can be observed around the cages.

The hawksbill turtle (*Eretmochelys imbricate*), green sea turtle (*Chelonia mydas*), monk seal (*monachus schauinslandi*), and humpback whale (*Megaptera novaeangliae*) are four (4) rare, threatened, and endangered species of concern. However, the hawksbill turtle, monk seal, and humpback whale have not been observed at the farm. Green sea turtles have been observed two (2) to three (3) times a year at the project area. Birds do not frequent the project area as the cages are submerged.

HUMAN OCEAN ACTIVITIES

Canoeing, kayaking, and jet ski activities have rarely been observed in the vicinity of the project area. Boats, recreational snorkelers, and SCUBA divers have approached the project area but have not lingered due to ongoing farm activities, possible entanglement, water depth, and distance to shore. Recreational fishermen have transited the area, trolled, or drift fished the area. The farm has worked with commercial fisherman attracted by opelu aggregations to avoid interrupting operations.

DESCRIPTION OF THE PROPOSED USE:

As noted, Hukilau Foods is asking to expand the moi farm and current lease area. It will be expanded an additional 33.51 acres (1,457,685 square feet) from the existing 28.077 acres (1,221,350 square feet) to a total of 61.59 acres (2,679,165 square feet) (**Exhibit 3**).

The existing North-South dimension would widen from 782 feet to 1451 feet, and the existing East-West dimensions would widen from 1564 feet to approximately 1849 feet.

The four (4) corners of the project area are located:

- Northeast corner: 21.2904 North Latitude 158.0049 West Longitude;
- Northwest corner: 21.2899 North Latitude 158.0093 West Longitude;
- Southeast corner: 21.2852 North Latitude 158.0041 West Longitude;
- Southwest corner: 21.2846 North Latitude 158.0085 West Longitude; and
- Cage center: 21.2875 North Latitude and 158.0066 West Longitude.

Water depth under the cages will be between 150 feet and 170 feet. The depth of the anchors at the far reaches of the grid will be 250 feet.

EXCLUSIVE USE

Hukilau Foods is asking for exclusive use of the area located above, below, and within the SS cages and the feed/security barge; total exclusive use requested is two (2) acres (87,120 square feet). Hukilau Foods is also asking for limited exclusive use of the remaining 59.59 acres (2,592,165 square feet) to limit snorkeling, SCUBA, diving, or anchoring in the lease area. It is envisioned that transiting boats, trolling and drift fishing will still occur.

CURRENT USE

Hukilau Foods will continue with the cultivation of moi (*Polydactylus sexfilis*).

SPECIES SELECTION

Hukilau Foods intends continue to culture moi (*Polydactylus sexfilis*). Genetic mapping of the species indicates fish around the islands are of one (1) genetic stock, therefore wild brood stock can be sourced from local waters.

SEA CAGE DESCRIPTION

The sea cages are designed by Ocean Spar LLC (Bainbridge Island, Washington) to withstand sustained currents in excess of 2.5 knots. Currently, there are four (4) SS 3000 cages; each has a cage volume of $3000m^3$. Maximum total production capacity is 1.2 million pounds a year. Hukilau Farms proposes to replace the four (4) SS 3000 cages with four (4) SS 6000 cages, and install an additional four (4) SS 6000 cages; total eight (8) SS 6000 cages.

Each cage is approximately 104 feet in diameter by approximately 77 feet in length (internal volume is $6000m^3$ and are twice the size of SS 3000 cages). The cages are bi-conical in shape with a frame of steel tubing; a vertical buoyant cylinder keeps the cage upright. The cage system consists of high strength 35 mm Spectra fiber mesh netting (UV resistant synthetic material), bridles, lines, chains, buoys, and anchors. A 14,300 pound cement ballast weight is attached to the bottom of each cage's spar, and rests on the sandy substrate. Sixteen (16) Danforth style anchors (6000 to 8000 pounds) compose the mooring grid system. Divers enter through zippered openings in the mesh.

During normal operating conditions the cages will be submerged 30 to 40 feet below the surface. The base of the cages will be located 30 to 60 feet from the oceans substrate.

FACILITIES

Hukilau Foods envisions using the leased Department of Agriculture (DOA), Kalaeloa Agricultural Park (near Campbell Industrial Park) area as a large scale hatchery. Other facilities include the leased Division of Boating and Ocean Recreation (DOBOR) Keehi Lagoon area for office space, general storage, feed storage, maintenance shop, fish transfer, and packing capabilities.

PRODUCTION

Hukilau Farms proposes to expand production capacity to five (5) million pounds a year, over a three (3) year period. Estimated wholesale value of Hukilau Foods production at full scale is projected to be $20 million with a projected wholesale price of $4.00 per pound. The company is focusing on contributing to the local market for moi before considering exporting.

Maximum individual cage production is estimated to be 625,000 pounds per year, with multiple crops. There will be a proportional increase in feed per cage. Maximum fish densities (weight per unit volume of water or kg/m^3) will remain at its current number 30 kg/m^3.

OPERATION PLAN

The goal will be reached with the installation of eight (8) SS 6000 cages within one (1) year of the initial realignment of the mooring grid depending on weather, harvesting, and availability of fingerlings.

Installation - approximately 26 days:

- Step 1 - four (4) existing SS 3000 moved to the West and secured/3 days;
- Step 2 - existing anchors will be moved to attach new anchor lines/14 days;
- Step 3 - newly deployed anchor grid will undergo tension tests/2 days;
- Step 4 - four (4) existing SS 3000 cages will be moved and reattached/7 days;
- Step 5 - installation of four (4) SS 6000 cages (when stock available)/8 days; and
- Step 6 - harvest moi from four (4) SS 3000 cages then replaced with SS 6000 cages/8 days.

The total number of anchors to secure the grid will remain at (16) sixteen. The mooring configuration will change as there will be fewer mooring lines per cage. The cage array will be oriented roughly perpendicular to the nearest land and to the prevailing currents to allow for maximum mixing.

FEED

A feed/security barge has been attached to the center of the mooring grid 24/7 for the past five years. Proposed plans include changing the current barge with a larger feed/security barge (70 feet long and 24 feet wide and is 6 feet above the sea surface). Supported activities will include: remote controlled fish feeding, remote video monitoring of cages and stock, security telemetry, raising and lower of cages for maintenance. Any required lighting and signage will be approved by the US Coast Guard. Video cameras will provide 24/7 coverage.

Feeding occurs daily from the feed/security barge which stores a supply of pelletized, sinking feed. Feeding schedules and quantities vary per cage according to biomass. Feed is electronically controlled and monitored by video cameras and divers to avoid overfeeding. There is a strong economic incentive to avoid overfeeding the moi, managing fish consumption, and minimizing waste; it is the highest contributing unit cost to each unit of fish production.

Feed consists of commercially available marine pellet food; consisting of fish meal, agriculture grains, and a vitamin/mineral mix (crude protein content of 43%). No hormones or antibiotics are used. The feed conversion ratio (FCR) is 2 to 1; feed divided by the fish produced.

MAINTENANCE

Cages will be submerged at all times; except in the case of major net replacement. Cage maintenance consists of: 1) inspection of stock for mortalities and their removal; 2) repair of various cage components (i.e. spar, support cables, anchor system, net enclosure); 3) cleaning of cage and mooring lines. Lines are inspected on a bi-weekly to monthly interval. Netting is inspected regularly; major and minor repairs are conducted by divers. The design life of the steel components is 15 to 20 years. The service life of the netting is 10 to 12 years,

Cleaning algae and marine growth on the cages is done by divers using a commercial power washer every two months. Chemicals are not used in the cleaning process. Pulverized material is dispersed by currents, assimilated, and recycled by the ocean environment.

HATCHERY & FINGLERINGS

Stocking material (fingerlings) will be produced from captive brood stock. Initial brood stock will be sourced from wild populations and occasionally replenished with wild stock.

Fingerlings (approximately two (2) to three (3) inches in length/two (2) to three (3) months old) will be transported from the hatchery site in tanks to Keehi Lagoon and/or Kaelaeloa Harbor for loading into boats. Fingerlings are generally distributed in submerged cages via hoses from the boat.

Harvesting market size fish occurs after seven (7) months when moi are one (1) pound to 1 1/4 pounds. SCUBA divers herd the marketable fish to a specific area of the cage where moi are pumped to the deck of the support vessel into an ice-brine slurry bath. Moi are transported in the slurry to Keehi Lagoon for offloading into local wholesaler containers. Fish processing does not occur at sea during harvest; solid waste disposal is the responsibility of the buyer(s).

POTENTIAL IMPACTS AS REPORTED BY THE PROJECT APPLICANT:

Hukilau Foods indentifies short term impacts to water quality will occur. With the realignment and addition of the cages bottom sediment will be impacted. Lifting the Danforth anchors and single ballast weights will also result in minimal and short term re-suspension of soft sediments and sand. However, sediment will also be disturbed for a short period of time. Marine life located within the footprint of the existing/proposed anchors (.025 acres) will be disturbed for a short period of time. However, the effects will be minimal and Best Management Practices (BMP's) are not required.

Long term impacts are anticipated to: 1) water quality; 2) substrate quality; 3) flora and fauna; 4) disease; 5) fish escape; 6) invasive and protected species; 7) sharks; and 8) rare, threatened, and endangered species.

Hukilau Foods notes potential impacts to water quality, due to elevated nutrients, should be insignificant. Expanded production capacity would realize similar water quality results with proposed biomass, expanded area, proposed realigned cage layout, and current patterns. Maximum fish biomass, density of fish feed, and fish waste products should be similar to the existing farm. BMPs to minimize negative impacts include: 1) obtaining and adjusting the ZOM permit; 2) monitoring program; 3) modifying feeding schedules; 4) adjusting cage biomass; and 5) altering cage cleaning schedules.

The proposed project has the potential to affect substrate quality and elevate sediment nutrients. Existing monitoring indicates polychaete species dominate the area under the cage - *Ophryotrocha adherens*, and near the cage - *Capitella capitata.* However these changes do not have great ecological significance. Changes are known to occur in benthic environments when nutrient enrichment occurs from any source. When cages have been harvested and remain empty, species composition and abundance shifts back to barren sand. BMP's to minimize potential impacts: 1) realign cages to prevailing current so turbulent flow will increase dilution of waste products; 2) new cages will be anchored in deeper water allowing for greater mixing and assimilation of particulate and dissolved waste products; 3) modifying feeding schedules; 4) adjusting cage biomass; and 5) altering cage cleaning schedules.

Flora and fauna attracted to the expanded project area will create a mini ecosystem in an area that was previously barren. The sea cages will provide substrate for benthic invertebrates, algae, benthic fish, reef fish, and pelagic fish. The impact of the cage system on organisms and habitat is not considered significant given the relative size of the farm habitat and large expanse of available natural habitat.

Hukilau Foods acknowledge concerns regarding disease transfer from either cultured stock to wild stock and wild species to farmed species. BMPs include: 1) inspection of fingerlings for disease (prior to stocking, at four months during grow out, and before fish are harvested); 2) controlled feeding rates; 3) utilizing acceptable stocking densities; 4) removal of morts; 5) cage cleaning; 6) controlled access to the facility; and 7) notifying the DOA and DOH when disease occurs.

Fish escapes is an issue due to the potential to transfer disease to wild stock and cultured stock as well as genetic impacts of cultured fish on wild fish. However, moi are genetically the same and represent one population; fingerlings produced from these fish are genetically the same as wild fish.

Invasive algae attaching to the mooring system and cages is a concern. However, the project area is two (2) miles from shore, and in 140 feet of water; this is a major deterrent. The regular cleaning of cages will also reduce available substrate surface.

Sand Bar Sharks (*Carcharhinus plumberus*) visit the project area. Tiger sharks have been observed once near the site but are more commonly found in the vicinity of the farm. However, farming activities have not significantly affected shark behavior or movements in the farm's vicinity. Mitigation includes removing morts from the cages.

Concerns regarding rare, threatened, and endangered species consist of two issues: 1) altering the animals behavior and habitat; and 2) risk of entanglement. Observations regarding the hawksbill turtle, monk seal, humpback whales, green sea turtles have been discussed. BMPs include: 1) avoiding marine mammal entanglement (taut lines and netting); 2) inspection by divers; and 3) contact with federal and state agencies regarding encounters.

PROJECT ALTERNATIVES:

Hukilau Foods considered the following alternatives: 1) expanding the current Hukilau Foods site; 2) increase the stocking density of the existing cages; 3) changing the four SS 3000 cages to four SS 6000 cages; 4) increasing the number of SS cages; 5) pursuing a suitably sized lease in a new site; and 6) no action alternative.

Increasing the stocking density of the cages was not considered due to greater stress on the fish causing greater difference in fish size(s) within a crop which would reduce the value of the fish. Increasing the size of the cages was not pursued; the substantial investment in the new hatchery and other facilities, satisfying the demand for moi in Hawaii, plus exporting goals did not support the limited expansion. Increasing the number of cages was not pursued due to anchoring practices; required ratio of anchor line to water depth. New lease sites were not pursued due to the challenge of identifying areas not used recreationally or commercially, as domestic waste outfalls, or were restricted areas. The no action alternative would mean the fish farm would not expand and would remain at its current size, moi production would remain limited, supply statewide would be inadequate, no increase in employment opportunities, no increase in direct and indirect expenditures, and no opportunity to further refine sustainable open ocean aquaculture technologies.

PUBLIC INPUT

The Honolulu Star-Bulletin newspaper published the "State of Hawaii, Department of Land and Natural Resources, Public Notice: Notice of Receipt and Invitation for Public Comment," pursuant to Chapter 190D, HRS on August 22, 29, 2009 and September 5, 2009. The Honolulu Star-Bulletin published the "State of Hawaii, Department of Land and Natural Resources, Notice of Public Hearing on Proposed Land Use Within the Conservation District," pursuant to Chapter 183C, Hawaii Administrative Rules (HAR) on August 19, 2009. Both notices invited the public to comment on the proposed project. A Public Hearing was held on the matter on September 10, 2009 at the Kalanimoku Building, 1151 Punchbowl Street, in Honolulu, Hawaii. Approximately seven (7) individuals attended the hearing. No major concerns were raised and the majority of people approved of the proposed project.

SUMMARY OF COMMENTS:

The DLNR, Office of Conservation and Coastal Lands (OCCL) requested comments from the following agencies: Division of Aquatic Resources (DAR), Division of Conservation and Resource Enforcement (DOCARE); Division of Boating and Ocean Recreation (DOBAR), Oahu District Land Agent (ODLO), Engineering Division; City and County of Honolulu - Mayor's Office, Council Members, Councilmember Mr. Apo, Department of Planning and Permitting; Department of Business, Economic Development, and Tourism (DBEDT) - Office of Planning

(OP); Department of Agriculture (DOA) - Aquaculture Development Program, Department of Health (DOH) - Environmental Planning Office, Land Use Review, Office of Environmental Quality Control (OEQC); Office of Hawaiian Affairs (OHA); Department of Transportation (DOT); U.S. Fish and Wildlife Service (USFWS); U.S. Army Corps of Engineers (USACOE); US Coast Guard (USCG); National Oceanic Atmospheric Administration (NOAA); National Marine Fisheries Service (NMFS), Ewa Beach Public Library, Pearl City Library, and Hawaii State Library. Comments are as follows:

Land Division
The applicant currently has a lease under General Lease No. S-5654 (expires March 8, 2021) for mariculture purposes consisting of 28.077 acres seaward of TMK: (1) 9-1-005. The applicants request to expand the aquaculture farm by an additional 33.51 acres to 61.59 acres would require the Board's approval to amend the existing lease.

Applicant Response: Hukilau Foods will follow through with the Land Division to amend the General Lease.

Engineering Division
The National Flood Insurance Program (NFIP) doesn't regulate activities under water. We do not have any objections to expand the existing moi aquaculture farm an additional 33.51 to 61.59 acres and expand the lease for state marine waters.

Applicant Response: you indicate your office has no objections to the expansion of the lease of state marine waters for moi culture.

Division of Boating and Ocean Recreation
No comment.

Division of Aquatic Resources
DAR does not have an objection to Hukilau Foods request to expand the existing moi offshore aquaculture farm to 61.59 acres. The biological and environmental impacts to the existing and requested area for the expansion should be minimal. We would like to note if the applicant discourages public access and use of the area one would expect recreational-commercial activity to be minimal. While DAR notes the need for operational security, there may be a fine line between the effectively exclusive use of the area, and reasonable public use. There is a potential to change the level of night time activity between the current and proposed expanded area. The "permanent" mooring on site of the "security barge" makes good business sense; but may draw unwanted attention, increased boating traffic, and related aquatic activities since the barge will act like a marker buoy and attract users to the site.

Applicant Response: Regarding recreational and commercial boat use, fishing, snorkeling, SCUBA, and less public use Hukilau Foods is requesting a more formalized statement of the policy, due to staff safety, public safety, interruption of farm operations, and liability. Hukilau Foods does not want boats to drop anchor on its cages or get entangled in its mooring lines. The average fisher is not attracted to the site as the bottom contains a barren sand bottom. Troll and drift fishing can occur so this type of fishing was not discouraged. We viewed this type of use (transiting and non-anchoring boats) as reasonable use by the public. The public has cooperated

with Hukilau Foods staff. The cages and feed/security barge will have 24/7 security cameras to help deter such activities. There has been no night diving on the site. Hukilau Farms notes that the Hawaiian Islands Humpback Whale National Marine Sanctuary (HIHWNMS) indicates no comments or concerns with the proposed expansion.

Office of the Mayor
I have referred the application to the Department of Planning and Permitting for a direct reply to your office.

Department of Planning and Permitting
No comment.

Office of Planning
The office has no judgment of either the adequacy of the document/application itself or the merits of the proposed project.

Applicant Response: We understand the office does not have any comments on the proposed project at this time.

Department of Health
Any project and its potential impact to State waters must meet the following criteria: 1) HAR, Section 11-54-1.1 Antidegradation policy; 2) HAR, Section 11-54-3 Designated uses; 3) HAR, Sections 11-54-4 through 11-54-8 Water Quality criteria. The USACOE should be contacted to see if a Department of the Army (DA) permit is required; projects requiring a DA permit also require a Section 401 Water Quality Certification. Cates International has a NPDES permit individual permit HI 0021792 (expired on July 26, 2006). A new permit was applied for was assigned number HI 0021829; it has not been issued to date. Information on file does not reflect the change in ownership and operations and should be updated as soon as possible. Contrary to what is written in the DEA; the facility requires NPDES permit coverage even when annual production is less than 100,000 pounds.

Applicant Response: The DOH is aware Hukilau Foods is obtaining a new CDUA and wanted to wait for the process to conclude prior to reissuing a NPDES permit. Current monitoring meets all state and federal requirements.

Aquaculture Development Program
Based on Hukilau Food's track record of ten (10) years of fish farming at the sire, without significant problems, and the comprehensive information provided for the proposed expansion strongly support the permit application and project proposal. The project will help support Hawaii's economy and provide employment for our aquaculture industry sector.

Applicant Response: Thank you for your strong support.

Department of Transportation
DOT notes given the projects location and the lack of any stated plans for the company to use the State harbors, DOT doesn't anticipate any significant adverse impacts to its transportation facilities at this time.

Applicant Response: We understand the department does not anticipate any significant adverse impact to its transportation facilities at this time.

Office of Hawaiian Affairs

OHA is unclear what limitations on access the applicant is referring to in regards to the project. If there is free transit and the ability to fish over and through the project area OHA is unclear why fishers would have to avoid farm operations other than to avoid collision with other boats. OHA seeks clarification on these points and urges the rights of fishers and our beneficiaries in the area be recognized by the applicant and possibly not be abridged. A monitoring and management plan (in conjunction with state and federal agencies) for interactions with marine mammals, sea turtles and sharks should be included. Cultural considerations for these species should be considered. Lastly, OHA asks the applicant consider setting a percentage of their harvest to replenish local stocks of fish with mature breeding fish.

Applicant Response: We note: 1) regarding access limitations, Huiklau Foods and the commercial fisherman work together to take advantage of the occasional concentrations of opelu; 2) limitations may refer to no anchoring of boats for fishing, SCUBA, and snorkeling - we will make changes in the FEA; 3) we discourage the anchoring of boats, SCUBA, and snorkeling due to concerns over public and staff safety, potential interference with farm operations, cage and mooring system entanglements, and liability issues; 4) we are requesting a more formal limitation of no anchoring of boats in the new lease; 5) boats may freely troll or drift fish and transit through the site as long as the avoid interference and collision with work boats; 6) we have cooperated with Native Hawaiian commercial fisherman; 7) the site is not frequented by protected marine mammals - in the event of an emergency the local NOAA office and state official will be called; 8) green sea turtles are not affected by farm operations and their protected status is respected; 9) sharks are occasionally present however there have been no diver incidents; 10) we are aware and respect the significance of sharks, turtles, and marine mammals to Native Hawaiians; 11) our offer to stock hundreds of thousands of free seed stock for wild stock enhancement has been declined; and 12) we have donated seed stock to fishponds in Kaneohe Bay, Heeia, and Molii fishponds and will continue to do so.

National Marine Fisheries Service

The proposed aquaculture operations discharge site is located in a coastal area that has been identified as Essential Fish Habitat (EFH) under the following Western Pacific Regional Fishery Management Council Fishery Management Plans (FMP): pelagic (eggs and larvae), bottomfish (eggs and larvae), Crustaceans (eggs, larvae, juveniles, adults), Coral Reef Ecosystems (eggs, larvae, juveniles, adults). NOAA Habitat Conservation Division recommends the following be incorporated into the DEA: 1) provide estimates of the total level of organic waste that is produced per unit of time based on what the mortality rate of the moi is/outcome of carcasses, and quantity of organic material that results from cage cleaning; 2) potential impacts (direct, indirect, cumulative) to the benthic community; 3) detailed description of current and planned water quality and benthic monitoring (i.e duration, sampling plan, frequency) and provide reports to support statements made in the DEA; 4) risk of entanglement of marine mammals; 5) provide information on marine mammals using the cages to feed on fish attracted to the outside of the pens; 6) provide information on marine mammal take mitigation measures that could be used to

reduce the likelihood of marine mammal entanglement or behavior changes resulting from aquaculture operations.

Applicant Response: We note: 1) mortality rates vary however a typical daily single cage mortality rate would be up to 10 fish per day (after harvesting events mort may increase); 2) morts are removed daily by divers; 3) morts are disposed of by a fish waste processor (land based) where they are converted into fertilizer; 4) feeding schedules will be worked out later; 5) gross estimate of average daily feeding rate per 6000 m3 cage at full capacity is 3472 pounds/cage/day; 6) fish feed assimilation is around 87% or 3021 pounds; 7) feed waste generated would be 451 pounds/cage/day; at 0.1 knot current it has been calculated 217 million gallons of seawater flows through the smaller 3000 m3 cage in a day - normal average current speeds are up to 2 to 3 times this value; 8) documentation exists for strong consistent ocean currents facilitating rapid mixing and assimilation of fish waste by other farms (Kona Blue Water Farms, farm in Puerto Rico); 9) there is no firm estimate of particulate material generated from cage cleaning - grazers at the site tend to keep epiphytes and attached invertebrates down; 10) a regular cleaning schedule keeps the amount of materials dislodged manageable; 11) regular benthic sampling is required - evidence indicates a shift in polychaete species and abundance is typical of the impact of rain events and non-point source nutrient imputs on nearshore waters; the shift in species is not deemed ecologically significant and appears to be reversible; 12) the processing of assembling the cages in Keehi Lagoon will not impact the substrate in Keehi Lagoon as they do not come in contact with it; 13) Keehi Lagoon is a working harbor so Hukilau Foods notes additional details on the subject matter is not needed on the EA; 14) we anticipate securing a ZOM permit (which is the area in which measured water quality parameters must return to ambient levels at its limit; there will be no cumulative impact of the farm on the oceans outfall discharges; 15) existing water quality and benthic monitoring plans are detailed in the DEA; the plans for the expanded farm will be negotiated with the DOH and DLNR when the final project configuration is known; 16) we note the expanded farm with 6000 m3 cages should have ample sea water volumes for dispersion and assimilation of particulate and dissolved waste products; 17) we have met the State's receiving water standards for the last seven years; 18) the main nitrogen metabolite of fish is ammonium; the highest uptake rate for nitrogen sources by phytoplankton is ammonium - nutrient uptake will uptake by phytoplankton will tend to dissolve waste loading and facilitate return of nutrients to the food web; 19) particulates will be consumed by resident fish and invertebrate species; 20) regarding entanglement the cage netting will be taut, the cages are not in the whale sanctuary area and mammals are rarely observed in the project area; 21) BMPs include keeping mooring lines and cage netting taut; 22) provisions in the CDUA Emergency Response Plan include contacting the appropriate authorities; 23) marine mammals do not feed at the site thus marine mammal take mitigation measures have not been considered; 24) we note the project area will occupy 0.025 acres of substrate and we deem a potential impact not significant; 25) the farm will contribute to a significant positive benefit of lessening pressure on local fishery resources; 26) the proposed project will not cause any significant adverse impacts on any Essential Fish Habitat or and Habitat of Particular Concern for any organism listed in your letter; and 27) the proposed project is not likely to lead to significant negative physical, chemical, or biological alteration to the ocean habitat or result in any significant alteration to the ocean habitat or result in any significant alteration to waters and substrate necessary for spawning, breeding, feeding, and growth of harvested species for their prey.

Dave Kisor
I keep reading about massive overfishing all over the worlds. Those who consider the oceans catch to be an infinite resource may be somewhat disappointed when they discover it is a finite resources and they have managed to deplete it. Laugh now. Consider the rest of life in the ocean and not just your profits, otherwise you'll break the food chain and won't be able to repair it. Then where will you be? Nobody ever listens until it is too late and then all they can manage are insignificant patches that never work.

Applicant Response: we note you are concerned about global overfishing and its impact on the world's oceans (as we are). You state aquaculture now provides over 40 % of aquatic protein worldwide and many experts support the idea that sustainable aquaculture, particularly open ocean fish farming will be the major source of seafood in the near future.

Gwen Iiaban
As an ocean advocate and concerned individual your agency must require that Hukilau Foods complete an Environmental Impact Statement (EIS) before they are allowed to expand the operation. The DEA is deficient in addressing: 1) the location of the two domestic waste outfalls (Sand Island Outfall, Honouliuli Outfall) regarding sewage outbreaks; and 2) fish escapement. The anticipated Finding of No Significant Impact (FONSI) is disingenuous; increasing the project's area and increase of fish would certainly have a cumulative impact.

Applicant Response: we note the following: 1) the DEA provides significant description and detail for interested public parties and agencies, to understand the proposed project and why an EIS is not needed; 2) in the event of an incident of concern with either outfall - appropriate testing will be conducted and appropriate action will be taken; 3) both domestic outfalls and fish farms are located in Class A waters which permit Zones of Mixing; 4) there are no known escapes of fish from the cages due to highly trained divers and management of security cameras; 5) the farm fish are genetically still wild fish so an escape event would in fact be similar to stock enhancement event regularly conducted by the state.

Jim Wyban
I support the expansion of Hukilau Foods offshore fish farm. The expansion would quadruple the production of moi which will benefit the economy of Hawaii, creating jobs, and cementing a foundation for future growth. The DEA sufficiently addresses: 1) wild fish populations; 2) conflicts with marine mammals; 3) endangered species and fisherman; 4) fish feed; 5) impacts on cultural resources; overall impacts on Hawaii and related US markets (to which the fish will be exported). Hawaiian waters are a public resource. Hukilau Foods is asking the citizens of Hawaii to allow it to improve the state's economy by intensifying production in a way that will increase the value of public resources. Fish farming in Hawaii increases food security and is consistent with traditional practices. I strongly support this project.

Kanaka Council Kale Gumpac & Food and Water Watch
See **Appendix A**.

13 Form Letters via Email

I have concerns regarding the proposed project and request that an EIS be prepared. The expansion would quadruple the production of moi; the cumulative impacts of biomass are unknown and warrant further study. Native Hawaiian (i.e. Kanaka Council) should be consulted. The DEA fails to sufficiently address the effects of the proposed farm regarding: 1) wild fish populations; 2) conflicts with marine mammals; 3) endangered species and fisherman; 4) fish feed; 5) impacts in cultural resources; 6) overall economic impact on Hawaii and related US markets (to which fish will be exported). Hawaiian waters are a public resource. Hukilau Foods is asking Hawaii citizens to allow it to increase its profits by intensifying production in a way that could cause substantial harm to public resources. Whatever impacts Hukilau Foods will have on existing natural resources will be shared by all of us; while profit will be theirs. It is imperative that Hukilau Foods complete a full EIS.

Staff Note: The Kanaka Council and Food and Water Watch letters are quite lengthy. **Appendix B** is Hukilau Foods responses back to Kanaka Council, Food and Water Watch, and to the form letter. Staff notes the applicant submitted and processed a DEA that was sufficient; possible negative and positive impacts were addressed through mitigation measures. The DEA discussed wild fish, marine mammals, endangered species, feed, cultural resources, and economic multipliers of the proposed project. Staff adds the farm has been in production for the last seven years under existing CDUP OA-2989, a general lease, and relevant state and federal permits.

STAFF ANALYSIS:

Staff notes that Chapter 190D HRS requires that a lessee who vacates the ocean lease site will remove equipment and restore the site to its original condition. In addition, Hukilau Foods will be required to purchase comprehensive insurance for recovery and removal of any lost or damaged farm materials, and other damage that might be inflicted by the farm. The proposed project's location is in offshore waters off of Ewa Beach, Island of Oahu and is located within the State Land Use Conservation District, Resource subzone.

The Hawaii State Constitution states, pursuant to Article XI entitled: CONSERVATION, CONTROL AND DEVELOPMENT OF RESOURCES, that the state shall "preserve and protect natural resources; promote the development and utilization of these resources in a manner consistent with their conservation and in furtherance of the self-sufficiency of the state; and have the power to manage and control the marine, seabed and other resources of the state."

Furthermore, Article XI, Section 6, of the Hawaii State Constitution, provides that mariculture operations shall be established under guidelines enacted by the legislature, which shall protect the public's use and enjoyment of the reefs. The legislature has provided guidelines for mariculture operations contained within Chapter 190D, HRS.

Chapter 190D, HRS, defines an "application" as a Conservation District Use Application (CDUA) and requires certain additional information about the marine environment to be included that would not normally be included in a CDUA. State marine waters are defined as the water surface, water column and state submerged lands of marine areas. The chapter identifies mariculture as a use for which an application and a request for lease of state marine waters may

be made. Pursuant to Chapter 171-53, HRS, the BLNR may decide upon applications and requests to lease state marine waters without the authorization of the legislature, but with the Governor's approval.

The following topics seek to address how the subject application and request for lease of state marine waters comply with Chapter 190D, HRS. In addition, leasing procedure is considered. The BLNR would consider specific provisions for any lease at a later date.

Following review and acceptance of the subject application for processing, the department scheduled a public hearing. Public notice of the hearing was provided as specified by Chapter 183C-6(c), HRS. The department also provided public notice of receipt of the application as specified by 190D-11(b), HRS. The BLNR shall consider the following issues when considering an application for mariculture:

On August 19, 2009, the Department notified the applicant that:

1. The proposed use is an identified land use (R-1, AQUACULTURE, D-1) within the Resource subzone of the Conservation District, according to Section 13-5-24, Hawaii Administrative Rules (HAR); please be advised, however, that this finding does not constitute approval of the proposal;

2. Pursuant to Section 13-5-40 (3), HAR, a public hearing will be required since the proposed use is of a commercial nature; and

3. In conformance with Chapter 343, Hawaii Revised Statutes (HRS), as amended, and Chapter 11-200, HAR, a FONSI was issued as the project will not have significant environmental effects; the Final Environmental Assessment (FEA) was published in the August 8, 2009 Environmental Notice.

The thirty (30) day public review period ended on September 8, 2009.

Regarding Chapter 205A, HRS relating to the Special Management Area (SMA) requirements the proposed project is located outside of the Special Management Area.

The following discussion evaluates the merits of the proposed land use by applying the criteria established in Section 13-5-30(c), HAR.

1. *The proposed use is consistent with the purpose of the Conservation District:*

   The purpose of the Conservation District is to regulate land use for the purpose of conserving, protecting, and preserving the important natural resources of the state through appropriate management and use to promote their long-term sustainability and the public health, safety and welfare.

   Hukilau Foods has been in operation for the last seven (7) years under CDUP OA-2989. During this time Hukilau Foods has met the DOH ZOM permit requirements regarding

water quality. There will be ongoing monitoring of the proposed project's activities, and reports will be generated to the department for review.

2. *The proposed land use is consistent with the objectives of the Subzones of the land on which the use will occur.*

The objective of the Resource Subzone is to develop, with proper management, areas to ensure sustained use of the natural resources of those areas.

Staff believes Hukilau Foods seeks to conserve the resources in a judicious manner. Staff believes that the natural resources will be conserved for future generations, provided that mitigation measures are observed, and that marine monitoring activities are carried out appropriately and in conformance with the wishes of the relevant resource managers and broader community.

3. *The proposed land use complies with the provisions and guidelines contained in Chapter 205A, HRS entitled "Coastal Zone Management," where applicable.*

Recreational Resources:

The submerged fish cages will not have adverse impacts to navigation, fishing or public recreation; transiting boats, trolling and drift fishing can and do occur. However, Hukilau Foods proposed project will have some impacts to snorkeling, SCUBA, diving, or anchoring in the lease area, as they are asking the BLNR to limit these uses. In addition, Hukilua Foods is asking for total exclusive use of two (2) acres of the area located above, below, and within the SS cages and the feed/security barge. As noted, boats, recreational snorkelers, and SCUBA divers have approached the project site but have not lingered due to a variety of factors (ongoing farm activities, possible entanglement, water depth, distance to shore). Currently, the farm works with commercial fisherman attracted by opelu aggregations.

Historic Resources:

No known historic resources or traditional and culturally important sites are known to exist at the subject location. Native Hawaiian fisherman and cultural practitioners familiar with the project area indicate there are no traditional fishing grounds or resources.

Scenic and Open Space Resources:

Visually the proposed expansion area is located two miles offshore from Ewa Beach. The SS cages will be submerged with no markers. The security/feed barge and work boats will be barely visible from shore, and indistinguishable from normal boat traffic. There will be no significant impacts on ocean aesthetics or views.

Coastal Hazards:

The proposed farm would be submerged so typical coastal hazards, including severe weather. In the event of tsunami, it is possible the farm could break away from its moorings and cause adverse impacts to coral reef marine resources. However, it is likely that the tsunami itself would have a greater impact to coral reef resources than the broken away cages.

Coastal Ecosystems:

The greatest threat to the ecosystem is the potential for short term impacts (water quality) and long term impacts (water quality, substrate quality, flora and fauna, disease, fish escape, invasive and protected species, sharks, and rare, threatened, and endangered species). Hukilau Foods has addressed the impacts with BMP measures. In addition, ongoing monitoring will take place which will be submitted to the department, available to the general public and resource agencies for review. Reasonable access will be given to Federal, State and County officials for monitoring and oversight purposes. If serious impacts are detected and documented, the lease for the project may be revoked or modified.

Economic Uses:

The proposed project will promote the development and utilization of resources in a manner consistent with their conservation and in furtherance of the self-sufficiency of the state. The proposed project will help diversify the state economy and provide new economic opportunities.

4. *The proposed land use will not cause substantial adverse impact to existing natural resources within the surrounding area, community or region.*

See discussion above.

5. *The proposed land use, including buildings, structures and facilities, shall be compatible with the locality and surrounding areas, appropriate to the physical conditions and capabilities of the specific parcel or parcels.*

The proposed project will be mostly submerged and should not have significant impacts on the marine environment.

6. *The existing physical and environmental aspects of the land, such as natural beauty and open space characteristics, will be preserved or improved upon, whichever is applicable.*

The cages would be submerged and not impact ocean surface views.

7. *Subdivision of land will not be utilized to increase the intensity of land uses in the Conservation District.*

   N/A

8. *The proposed land use will not be materially detrimental to the public health, safety and welfare.*

   Staff expects the proposed project will have a minimum impact upon the public health, safety and welfare.

Pursuant to Section 190D-11(d) HRS, the Board shall consider in its evaluation of each application:

(1) The extent to which the proposed activity may have a significant adverse effect upon any existing private industry or public activity, including the use of state marine waters for the purposes of navigation, fishing, and public recreation.

The cages will not have adverse impacts to navigation, fishing or public recreation; transiting boats, trolling and drift fishing can occur. Hukilua Foods is asking for total exclusive use of two (2) acres of the area located above, below, and within the SS cages and the feed/security barge. Hukilau Foods proposed project will have some impacts to snorkeling, SCUBA, diving, or anchoring in the lease area; they are asking the BLNR to limit these uses in the lease area. The farm works with commercial fisherman attracted by opelu aggregations.

(2) Whether the proposed activity may have an adverse or permanent effect upon the wildlife, aquatic life, or environment of the surrounding area.

The proposed project will not have an adverse or permanent effect upon wildlife, aquatic life, or environment of the surrounding area. Staff does not anticipate adverse or permanent effects to water quality or coral reefs due to project. Benthic monitoring indicated Polychaetes species dominated the control sites. However, after removing the cages the species disappeared. Staff notes the proposed project once implemented will likely have a similar characteristics as the current farm regarding polychaete species, species diversity, and community structure. The cages will act as a FAD, and provide a substrate for micro and macro algae plants, and benthic invertebrates. Reef fish, pelagic herbivorous fish, carnivorous fish, and omnivorous fish, and green sea turtles will be observed around the cages. It is not likely the hawksbill turtle, monk seal, and humpback whale will be observed at the project site. Staff notes monitoring will occur and should negative impacts be perceived BMP's will be enacted. If approved by the BLNR the permit will incorporate special conditions that require modifications or removal of the farm should it cause adverse impacts to marine mammals and/or the marine environment.

(3) Other potential uses of the area, including competing uses, which may be in the public interest.

As noted, canoeing, kayaking, and jet ski activities have rarely been observed. Boats, recreational snorkelers, and SCUBA divers have approached the project site but have not lingered due to ongoing farm activities, possible entanglement, water depth, and distance to shore. Recreational fishermen have transited the site, trolled, or drift fished the site. Hukilau Foods has worked with commercial fisherman attracted by opelu aggregations to avoid interrupting operations. Staff is of the opinion that the proposed use is acceptable.

Pursuant to Section 190D-11(e) HRS, the Board shall not approve an application unless it finds that:

(1) The applicant has the capacity to carry out the entire project.

Staff believes that Hukilau Foods has the capacity to carry the project out. Hukilau Foods (formerly Cates International) has operated the existing moi farm under CDUP OA-2989 and has extensive experience in planning, financing, and implementing the Ewa Beach moi farm aquaculture projects on the Island of Oahu.

(2) Whether the proposed project is clearly in the public interest upon consideration of the overall economic, social, and environmental impacts.

Hukilau Foods proposed project will impact the economy via: increases employment opportunities, product availability, use of and expenditures in local support industries (wholesale and retail sales, processing and packing activities, transportation providers, purchase of service, equipment, and supplies), and increased research. Eleven people are employed in the hatchery and offshore operations. Expansion of aquaculture farm will increase hatchery jobs to 10 people and administration jobs to 15 people. It is expected skill levels will increase for hatchery technicians, divers, accounting, marketing specialists.

The company will invest $13 million dollars via existing private funds and the Federal Fisheries Loan Program. Hawaii residents will be given preference when hiring. Internships programs will be developed via high schools, colleges, and universities. In addition, the state will benefit from increased personal income tax and corporate taxes and lease rents.

Pursuant to Section 190D-21(b) HRS, the board shall not lease state marine waters when existing programs of the department, such as the marine life conservation district program, shoreline fisheries management area program, or the natural area reserves program will suffer adverse impacts as a consequence of the proposed activities; provided that no lease shall be awarded within state marine waters designated as being necessary for national defense purposes, as determined by the department in consultation with the appropriate federal agencies.

Staff notes the project will not impact any of the DLNR programs as the project site is not located in a marine life conservation district area, shoreline fisheries management area or the natural area reserves area. If the BLNR approves the proposed project Hukilau

Foods will maintain contact with federal and state officials regarding continuing the marine monitoring program; marine mammals' behavior and any harm to marine mammals can be documented and ameliorated. If impacts are shown to be serious, the lease for the farm can be revoked by the BLNR.

Pursuant to Section 190D-21(c) HRS, the board shall not lease state marine waters unless the board finds that the lease for the proposed activity, after detailed consideration of the present uses, is clearly in the public interest upon consideration of the of the overall economic, social, and environmental impacts and consistent with other state policy goals and objectives.

Staff has evaluated the project with respect to other state policy goals and objectives such a Chapter 205A, HRS, "Coastal Zone Management." Staff has determined the project is consistent with the policies and objectives of Chapter 205, HRS.

Hukilau Foods has assessed the potential for short term and long term negative environmental impacts. Short term impacts identified impacts to water quality, bottom sediment, and marine life located within the footprint of the anchors. Long term impacts include: 1) water quality; 2) substrate quality; 3) flora and fauna; 4) disease; 5) fish escape; 6) invasive and protected species; 7) sharks; and 8) rare, threatened, and endangered species. BMP's were identified to mitigate any potential impacts.

Hukilau Foods will invest $13 million dollars via private funds and the Federal Fisheries Loan Program into the business. The farm will make significant contributions to local employment (employ 25 people) and contribute to an increased skill level; providing a continued and stable income in a fisheries related industry. Other areas which will be positively impacted include: product availability, use of and expenditures in local support industries (wholesale and retail sales, processing and packing activities, transportation providers, purchase of service, equipment, and supplies), research opportunities, internships programs (high schools, colleges, universities). In addition, the state will benefit from increased personal income tax and corporate taxes and lease rents.

Pursuant to Section 190D-21(f), HRS, the Board shall not approve an application, if in so doing it would fail to protect the public's use and enjoyment of the reefs in the state marine waters.

As noted the closet coral reef is located approximately 1800 feet to the north-northwest looking toward shore. There will be no negative impact to the public's use and enjoyment of the adjacent reef.

DISCUSSION:

Staff notes Hukilau Foods was formerly Cates International, a company which has been in business for the last seven (7) years, and who have an existing CDUP OA-2989 and general lease for moi aquaculture from the DLNR, as well as existing permits from other relevant state and federal agencies.

Staff notes Hukilau Foods is requesting to expand the moi farm and general lease area an additional 33.51 acres from the existing 28.077 acres; total of 61.59 acres. The existing North-South dimension would widen from 782 feet to 1451 feet, and the existing East-West dimensions would widen from 1564 feet to approximately 1849 feet.

Staff notes Hukilau Foods is asking the BLNR for exclusive use of the area located above, below, and within the SS cages and the feed/security barge; total exclusive use two (2) acres. Hukilau Foods is also asking for limited exclusive use of remaining 59.59 acres to limit snorkeling, SCUBA diving, and anchoring in the lease area (transiting and trolling boats and drift fishing will still occur). Staff notes the second request reflects a change in customary practices where SCUBA diving, snorkeling, and anchoring is not prohibited. However, staff notes no adverse comments have been relieved from the general public regarding the subject. Thus, staff notes the request to limit the uses in the lease area shall be considered during the land disposition process.

Staff notes some adverse comments were received however Hukilau Foods responded to the comments in writing and in a satisfactory manner. Staff notes Hukilau Foods will continue monitoring (water quality monitoring, marine mammal monitoring). Hukilau Foods has operated the moi farm for the seven years without incident regarding fish escapes, disease, and user conflicts. Staff notes Hukilau Foods is currently in compliance with all existing CDUP terms and conditions.

STAFF RECOMMENDATION:

A. That the Board of Land and Natural Resources APPROVE Conservation District Use Application OA-3525 by Hukilau Foods to expand the existing moi aquaculture farm located offshore Ewa Beach, Island of Oahu, subject to the following terms and conditions:

1. The applicant shall comply with all applicable statutes, ordinances, rules, and regulations of the federal, state, and county governments, and applicable parts of Chapter 13-5, Hawaii Administrative Rules (HAR);

2. The applicant, its successors and assigns, shall indemnify and hold the State of Hawaii harmless from and against any loss, liability, claim, or demand for property damage, personal injury, and death arising out of any act or omission of the applicant, its successors, assigns, officers, employees, contractors, and agents under this permit or relating to or connected with the granting of this permit;

3. The applicant shall obtain appropriate authorization from the Department of Land and Natural Resources for the occupancy of state lands;

4. The applicant shall comply with all applicable Department of Health administrative rules;

5. Before proceeding with any work authorized by the Department of Land and Natural Resources or the Board of Land and Natural Resources, the applicant shall submit four (4) copies of construction plans and specifications to the Chairperson or their authorized representative for approval for consistency with the conditions of the permit and the declarations set forth in the permit application. Three of the copies will be returned to the applicant. Plan approval by the Chairperson does not constitute approval required from other agencies;

6. Any work or construction to be done on the land shall be initiated within one (1) year of the approval of such use, in accordance with construction plans that have been signed by the Chairperson, and, unless otherwise authorized, shall be completed within three (3) years of the approval of such use. The applicant shall notify the Department of Land and Natural Resources in writing when construction activity is initiated and when it is completed;

7. All representations relative to mitigation set forth in the accepted environmental assessment or impact statement for the proposed use are incorporated as conditions of the permit;

8. The applicant understands and agrees that the permit does not convey any vested rights or exclusive privilege;

9. In issuing the permit, the Department of Land and Natural Resources or the Board of Land and Natural Resources have relied on the information and data, which the applicant has provided in connection with the permit application. If, subsequent to the issuance of the permit such information and data prove to be false, incomplete, or inaccurate, this permit may be modified, suspended, or revoked, in whole or in part, and the department may, in addition, institute appropriate legal proceedings;

10. Where any interference, nuisance, or harm maybe caused, or hazard established by the use, the applicant shall be required to take measures to minimize or eliminate the interference, nuisance, harm, or hazard;

11. The offshore fish farm shall operate submerged at least thirty (30) to forty (40) feet below the ocean surface, but may be raised for repair, transport or other maintenance;

12. The use of feeds containing supplemental hormones or antibodies shall not be allowed. Proposed feeds shall be provided to the Department with the pre-approval of the Department of Agriculture, for Departmental review and approval;

13. Only the continued culture of moi shall be allowed;

14. Buoys, signs or other markings shall be provided on the ocean surface to clearly mark the location of the sea cages and shall receive the approval of the US Coast Guard;

15. The applicant shall immediately report any ocean use conflicts to the Division of Boating and Ocean Recreation and the Land Division;

16. The applicant shall forward details of monitoring effort to the Office of Conservation and Coastal Lands and Division of Aquatic Resources and water quality results to the Department of Health, two weeks after receipt of the results. The Department of Land and Natural Resources shall be immediately notified of the failure of the mooring system, a disease outbreak, theft or vandalism;

17. The applicants, at their own expense, shall develop and conduct a water quality, benthic and coral reef monitoring protocol acceptable to the Chairperson. Such environmental monitoring shall continue indefinitely as specified by the Chairperson unless authorization for its suspension or reinstatement is specified by the Chairperson;

18. The applicant shall periodically sample ocean-farmed fish, and when necessary, fish in the area of the farm, and examine the sampled fish for parasites or other disease. Unless the Chairperson specifies other methods of sampling and analysis, sampling shall occur not less than once per year. Sampling shall be conducted by a qualified third party entity at the expense of the applicant, the result shall be provided to the appropriate agency for review and analysis;

19. The applicant shall submit all research, data, results or other publications, papers or reports concerning the fish farm and its surrounding environment to the Department of Land and Natural Resources and shall use objective, third party experts to collect water quality samples and marine mammal data. The applicant shall place copies of all Federal or State-mandated environmental quality reports at local repositories (i.e. DLNR, Division of Aquatic Resources), so that local residence may review the data. The applicant shall provide reasonable access to Federal, State and County officials for monitoring and oversight purposes;

20. The applicant need not submit information related to farm operations which is not necessary to evaluate the quality of the environment at the submerged fish farm and surrounding areas;

21. When submitting information to the Department of Land and Natural Resources copies of all information shall be supplied to both the Office of Conservation and Coastal Lands and the Division of Aquatic Resources;

22. The applicant shall monitor the condition of the submerged fish farm on a daily basis;

23. The applicant shall implement mitigative measures approved by the Chairperson to alleviate environmental or use concerns, when the need is apparent or when required by the Chairperson. Such mitigative measures may include the partial or complete removal of the fish farm facility;

24. Cages, anchors, lines and other fish farm facilities shall be removed at the conclusion of the use;

25. Any nets or other debris that foul on the cages or other part of the farm facility shall be disposed of as required by federal, state and city and county regulations and shall not be set free in the marine environment;

26. The applicant shall work with NOAA and Division of Aquatic Resources to develop and implement a marine mammal plan in coordination with, and subject to the approval of the Division of Aquatic Resources. The program will ensure to the maximum practicable extent that all close approaches and direct physical interactions of marine protected species with the project's structure(s) are recorded, described and reported to state and federal marine protected species agencies in an effective and timely manner. Direct physical interactions will include, but not be limited to collision, entanglement, grazing, or any other direct physical contact between any part of the structure (cages, mooring lines, buoys, etc.) and any marine protected species (all species of cetaceans and sea turtles). The protocol will describe conditions and criteria related to adverse impacts on marine protected species that would trigger associated mandatory modification of project activity. The criteria and conditions will include but not be limited to direct physical contact between marine protected species and any part of the structure. Associated mandatory project activity modifications will range from increased monitoring to immediate project shut-down and removal of the entire structure, depending on the severity of the impact(s);

27. The Board of Land and Natural Resources shall revoke the permit if the Department of Land and Natural Resources determines that the there is an adverse impact to marine mammals and/or the marine environment;

28. Dead fish shall not be disposed of in the surrounding waters but shall be removed from the site and disposed of at a County approved site;

29. Other terms and conditions as prescribed by the Chairperson; and

30. Failure to comply with any of these conditions shall render the permit void.

B. That the Board of Land and Natural Resources finds that:

1. The applicant's lease shall be subjected to section 171-53 HRS, and to the concurrence of the Director of Transportation;

2. The Applicant's lease is for commercial purposes;

3. The Applicant's lease will not adversely impact existing programs of the Department;

4. The Applicant's lease is clearly in the public interest upon consideration of the overall economic, social and environmental impacts and is consistent with other State policy goals and objectives; and

5. The Applicant has compiled with all applicable Federal, State and County statutes, ordinances and rules.

C. That the Board of Land and Natural Resources authorizes the direct negotiation of a lease with the Applicant, provided that approval for this disposition, including presentation of the negotiated terms and conditions of the lease, shall be obtained at a future Board meeting.

Respectfully submitted,

Dawn T. Hegger

Dawn T. Hegger
Senior Staff Planner

Approved for submittal:

LAURA H. THIELEN, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION
P.O. BOX 621
HONOLULU, HAWAII 96809

AQUACULTURE DEVELOPMENT PROGRAM
AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
CONSERVATION AND RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
LAND DIVISION
STATE PARKS
WATER RESOURCE MANAGEMENT

REF.PB:EAH

JAN 30 2001

FILE NO.: CDUA OA-2989B

Ms. Virginia Enos
Cates International, Inc.
P.O. Box 335
Kailua, Hawaii 96734

Dear Ms. Enos,

Subject: Conservation District Use Application (CDUA) No. OA-2989 and Request for a Lease of State Marine Waters for Marine Activities – Submerged Offshore Fish Farm: Finfish, Open Ocean, Cage Aquaculture Facility

On January 26, 2001, the Board of Land and Natural Resources (Board), pursuant to Chapter 190D, Hawaii Revised Statutes, took the following action on the subject CDUA and lease request for a submerged fish farm approximately two miles offshore of Honouliuli, Ewa, Oahu:

A. The Board approved CDUA OA-2989, subject to the following conditions:

1. The applicant shall comply with all applicable statutes, ordinances, rules, and regulations of the federal, state, and county governments, and applicable parts of Chapter 13-5, Hawaii Administrative Rules;

2. The applicant, its successors and assigns, shall indemnify and hold the State of Hawaii harmless from and against any loss, liability, claim, or demand for property damage, personal injury, and death arising out of any act or omission of the applicant, its successors, assigns, officers, employees, contractors, and agents under this permit or relating to or connected with the granting of this permit;

3. The applicant shall obtain appropriate authorization from the department for the occupancy of state lands, if applicable;

4. The applicant shall comply with all applicable Department of Health administrative rules;

5. Before proceeding with any work authorized by the department or the board, the applicant shall submit four copies of the construction plans and specifications to the chairperson or his authorized representative for approval for consistency with the conditions of the permit and the declarations set forth in the permit application. Three

EXHIBIT 1

of the copies will be returned to the applicant. Plan approval by the chairperson does not constitute approval required from other agencies;

6. Any work or construction to be done on the land shall be initiated within one year of the approval of such use, in accordance with construction plans that have been signed by the chairperson, and, unless otherwise authorized, shall be completed within three years of the approval of such use. The applicant shall notify the department in writing when construction activity is initiated and when it is completed;

7. All representations relative to mitigation set forth in the accepted environmental assessment or impact statement for the proposed use are incorporated as conditions of the permit;

8. The applicant understands and agrees that the permit does not convey any vested rights or exclusive privilege;

9. In issuing the permit, the department and Board have relied on the information and data which the applicant has provided in connection with the permit application. If, subsequent to the issuance of the permit such information and data prove to be false, incomplete, or inaccurate, this permit may be modified, suspended, or revoked, in whole or in part, and the department may, in addition, institute appropriate legal proceedings;

10. Where any interference, nuisance, or harm maybe caused, or hazard established by the use, the applicant shall be required to take measures to minimize or eliminate the interference, nuisance, harm, or hazard;

11. The offshore fish farm shall operate submerged at least 40 below the ocean surface, but may be raised for repair, transport or other maintenance;

12. The use of feeds containing supplemental hormones or antibiotics shall not be allowed;

13. Any culture of fish species, besides the Moi fish, shall be approved of the Chairpersons of the Department of Land and Natural Resources and the Department of Agriculture;

14. Signs or other markings of the site shall be regulated by site plan approval. The applicant shall immediately report any ocean use conflicts, such as nets fouling on the farm facility, to both the boating and land divisions. Buoys, signs or other markings shall be provided on the ocean surface when required by the Chairperson;

15. The applicant shall forward details of all monitoring efforts to the DLNR and water quality results to the Department of Health two weeks after receipt of results. The department shall be immediately notified of the failure of the mooring system, a disease outbreak, theft or vandalism;

16. The applicant, at their own expense, shall develop and conduct a water quality, benthic and coral reef monitoring protocol acceptable to the Chairperson. Such environmental

monitoring shall continue indefinitely as specified by the Chairperson unless authorization for its suspension or reinstatement is specified by the Chairperson;

17. The applicant shall periodically sample ocean farmed fish, and when necessary, fish in the area of the farm, and examine the sampled fish for parasites or other disease. Unless the Chairperson specifies other methods of sampling and analysis, sampling shall occur not less than once per year;

18. The applicant shall submit all research, data, results or other publications, papers or reports concerning the fish farm and its surrounding environment to the department. The applicant need not submit information related to farm operations which is not necessary to evaluate the quality of the environment at the submerged fish farm and surrounding areas;

19. When submitting information to the department, copies of all information shall be supplied to both the Land and Aquatics Divisions;

20. The applicant shall obtain the approval of the Chairperson before increasing to four submerged fish cages from the initial two submerged fish cages;

21. The applicant shall monitor the condition of the submerged fish farm on a daily basis;

22. The applicant shall implement mitigative measures approved by the Chairperson to alleviate environmental or use concerns, when the need is apparent or when required by the Chairperson. Such mitigative measures may include the partial or complete removal of the fish farm facility;

23. Cages, anchors, lines and other fish farm facilities shall be removed at the conclusion of the use;

24. Any nets or other debris that foul on the cages or other part of the farm facility shall be disposed of as required by federal, state and city and county regulations and shall not be set free in the marine environment;

25. Failure to comply with any of these conditions shall render the permit void;

26. Other terms and conditions as prescribed by the Chairperson; and

27. This initial approval is restricted to Moi.

B. The Board found that:

1. Applicant's lease shall be subject to section 171-53, HRS, and to the concurrence of the Director of Transportation;

2. Applicant's lease is for commercial purposes;

3. Applicant's lease will not adversely impact existing programs of the department;

4. Applicant's lease is clearly in the public interest upon consideration of the overall economic, social and environmental impacts and is consistent with other state policy goals and objectives; and

5. Applicant has complied with applicable federal, state and county statutes, ordinances and rules.

C. The Board authorized the direct negotiation of a lease with the applicant, provided that approval for this disposition, including presentation of the negotiated terms and conditions of the lease, shall be obtained at a future Board meeting.

Please acknowledge receipt of this conservation district use permit and lease authorization and acceptance of the above conditions and findings by signing in the spaces provided below and returning a copy to us within thirty (30) days.

Should you have any questions on this matter please contact Mr. Eric Hill of our planning staff at (808) 587-0380.

Aloha,

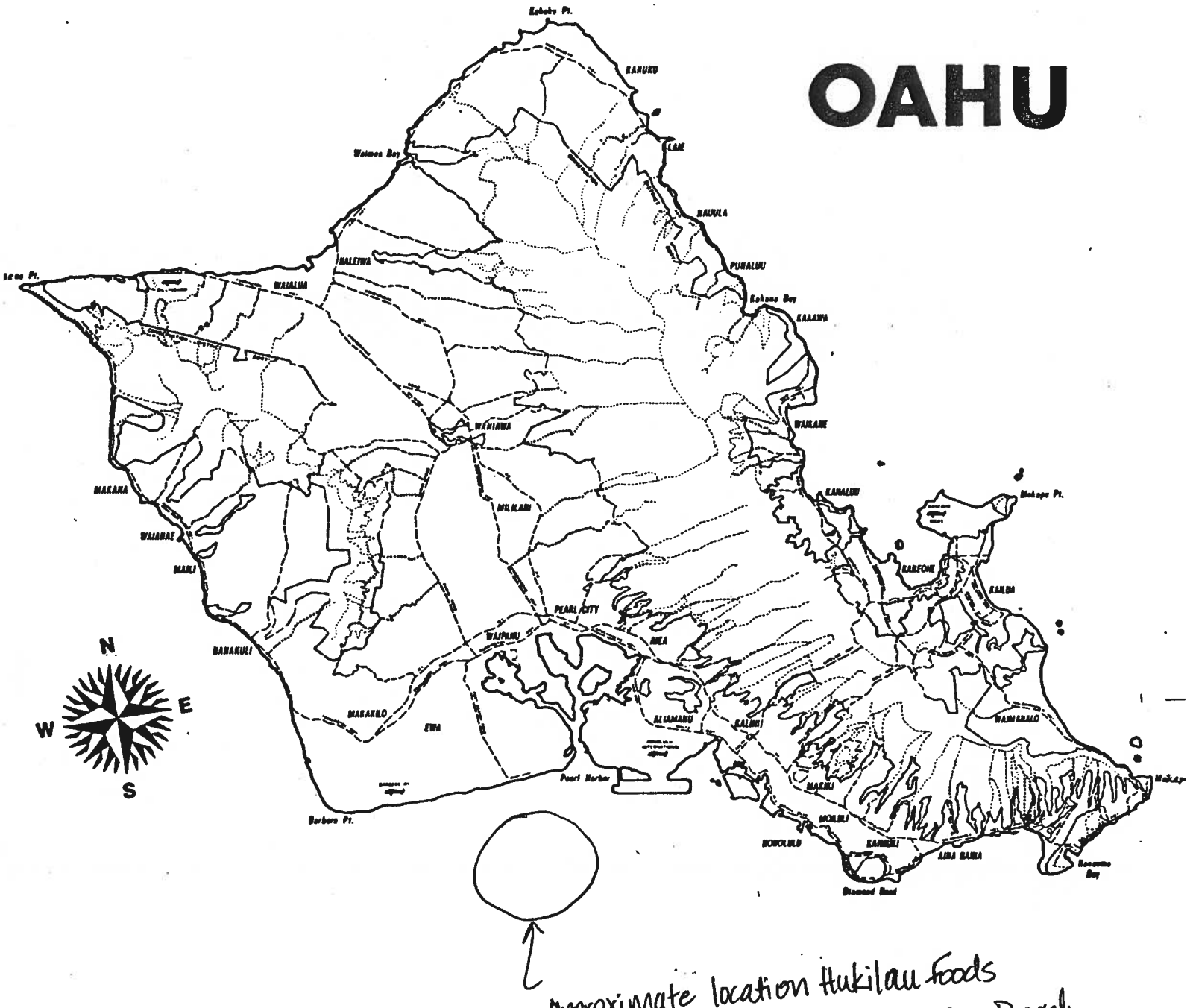
Dean Y. Uchida, Administrator

Receipt acknowledged:

Virginia Enos
Cates International, Inc.
Signature

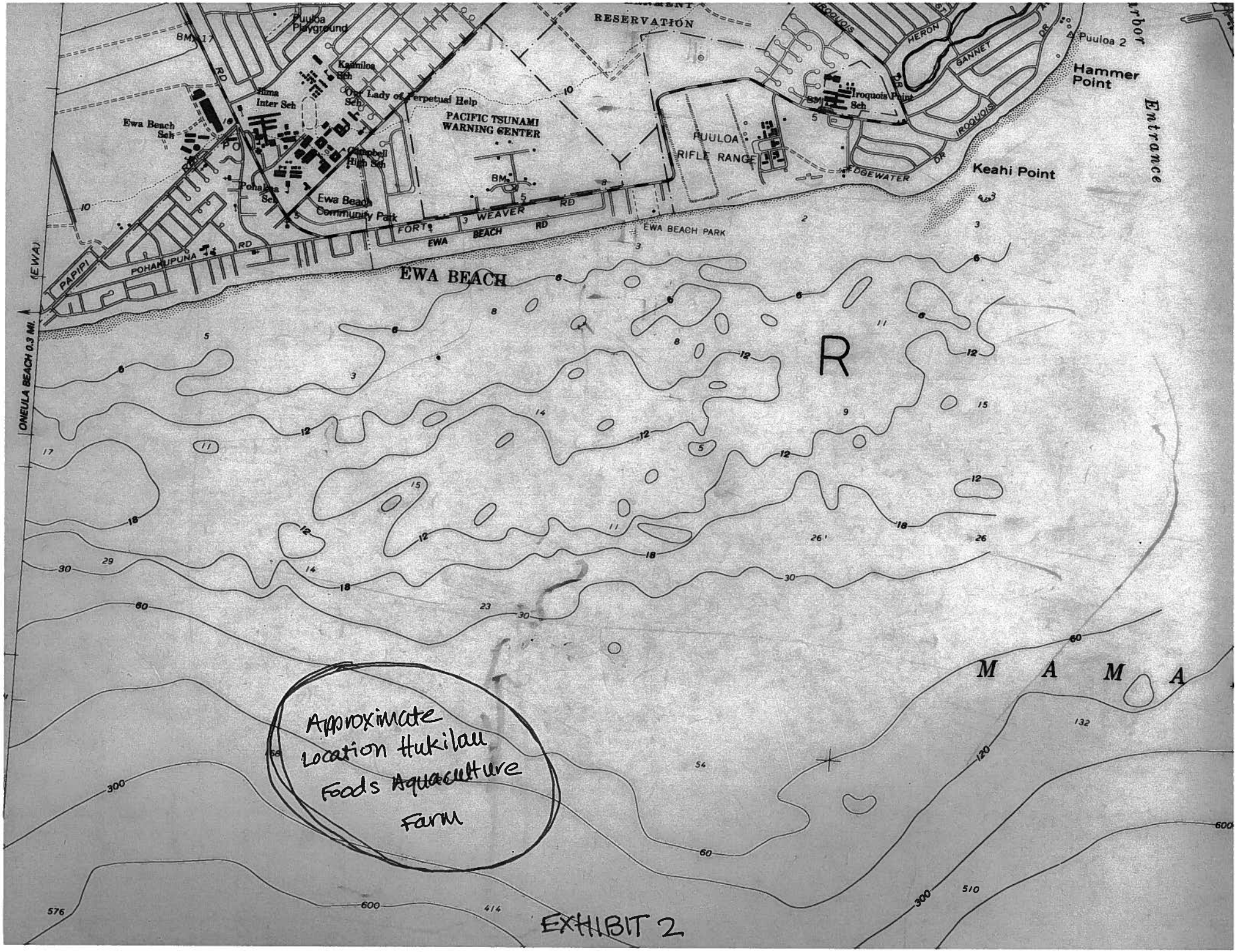
February 2, 2001
Date

c: Board Members
DOCARE/DAR/DOBOR/LD(ODLO, EB)
DOH/OHA
USACE – Honolulu Engineer District/US Coast Guard – 14th District/
USFWS – Pacific Island EcoRegion/NMFS – Honolulu Laboratory
City and County of Honolulu
Ewa Neighborhood Board



Approximate location Hukilau Foods Aquaculture Farm, Offshore Ena Beach, Oahu

EXHIBIT 2


RESERVATION
Puuloa Playground
BM 17
Kaimiloa Sch
Iliima Inter Sch
Our Lady of Perpetual Help Sch
PACIFIC TSUNAMI WARNING CENTER
Ewa Beach Sch
Campbell High Sch
Pohakea Sch
Ewa Beach Community Park
FORT WEAVER RD
EWA BEACH RD
EWA BEACH PARK
PUULOA RIFLE RANGE
BM
Iroquois Point Sch
HERON
GANNET
IROQUOIS
DR
EDGEWATER
Puuloa 2
Hammer Point
Keahi Point
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Approximate Location Hukilau Foods Aquaculture Farm
EXHIBIT 2

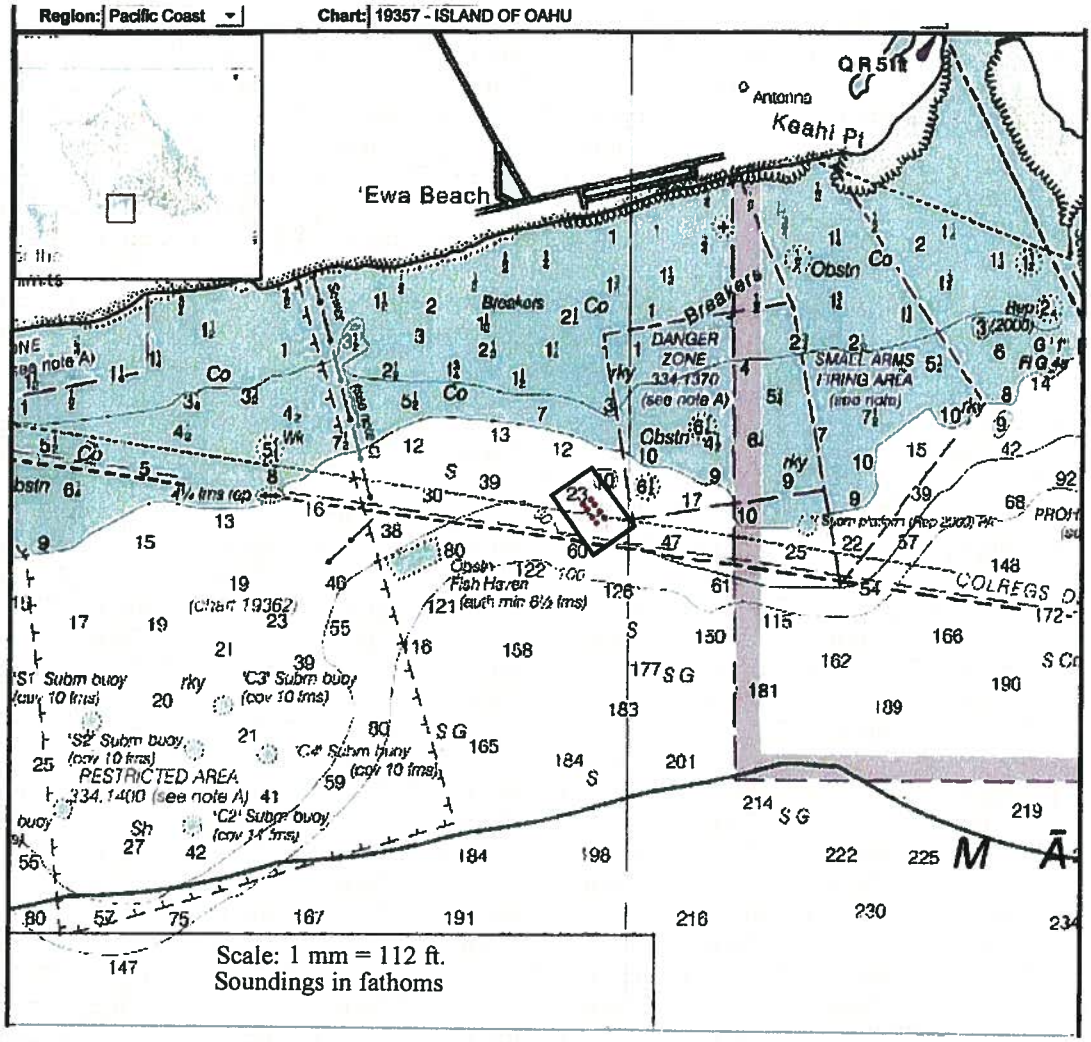


Fig. 3. Site location in the vicinity of Ewa Beach, with water depth and bottom type. Bottom types: Co (coral); rky (rocky); SG (sand and gravel); S (sand). Red circles are cages.

Fig. 14. Photo of barren, sandy ocean bottom in proposed HF expansion area.

EXHIBIT 2

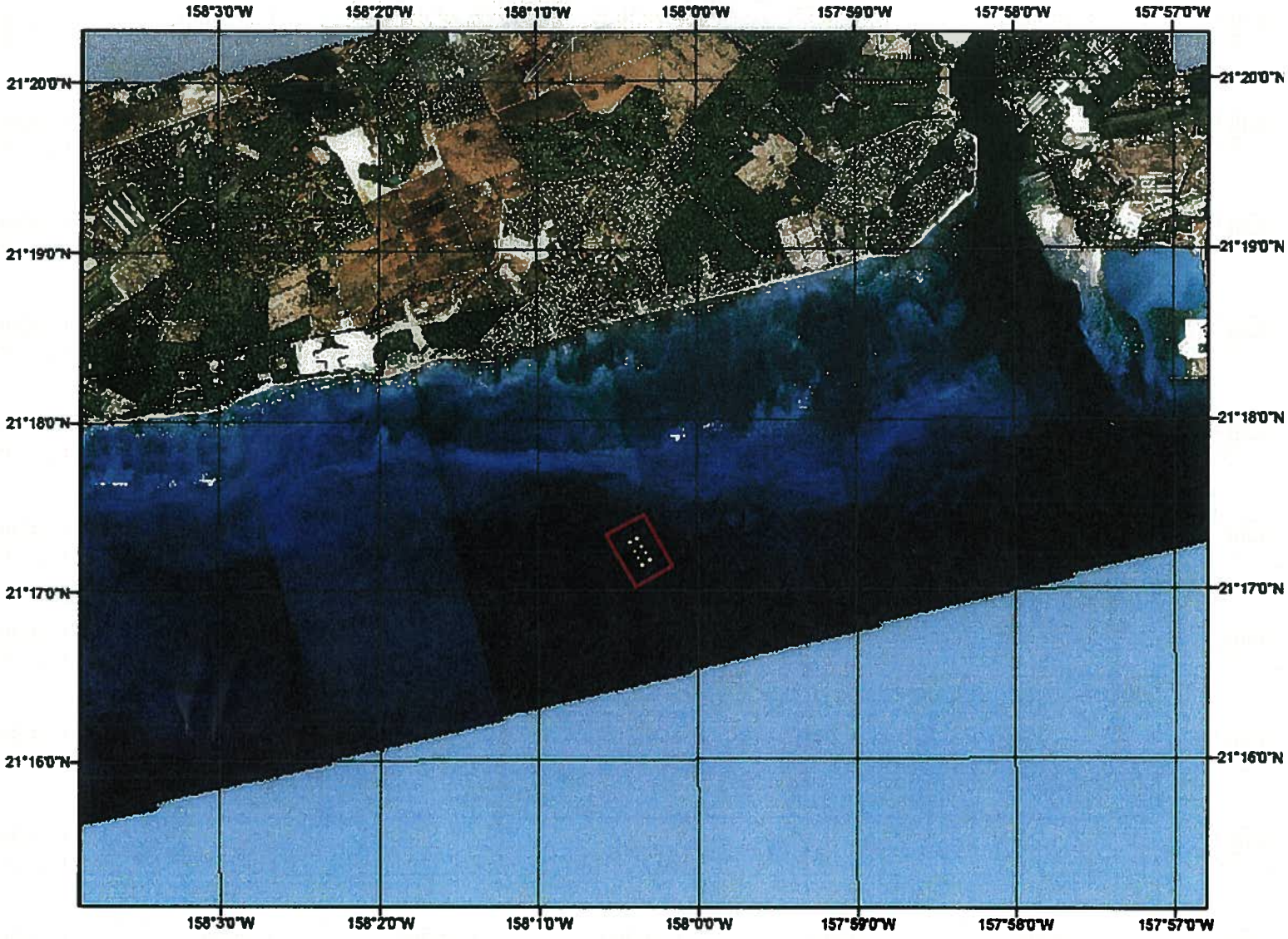


Fig. 4. Aerial photo of the proposed site (cages in yellow). Scale: .04 in. (1 mm) = 190 ft.

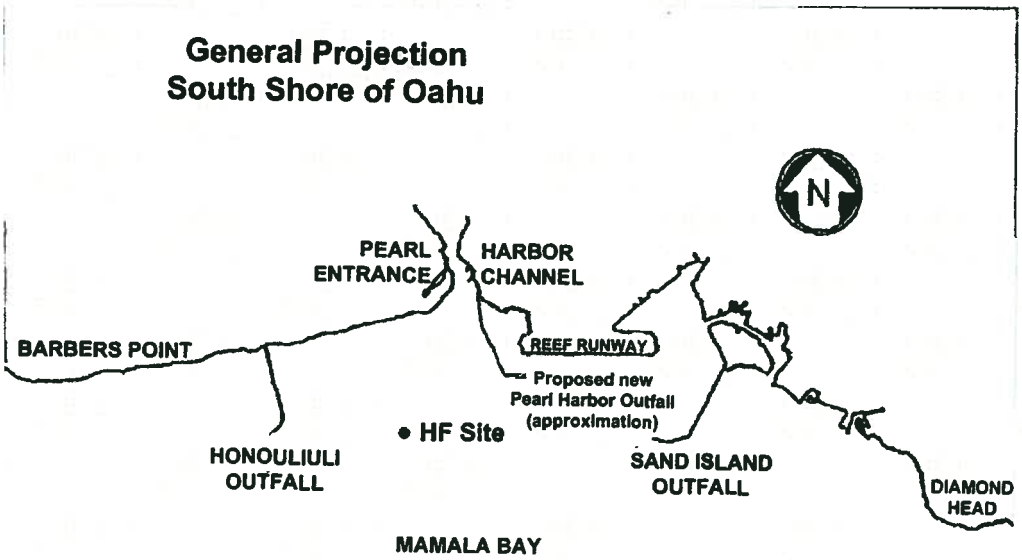


EXHIBIT 2

Fig. 2. South shore of Oahu with location of the project site and points of interest.

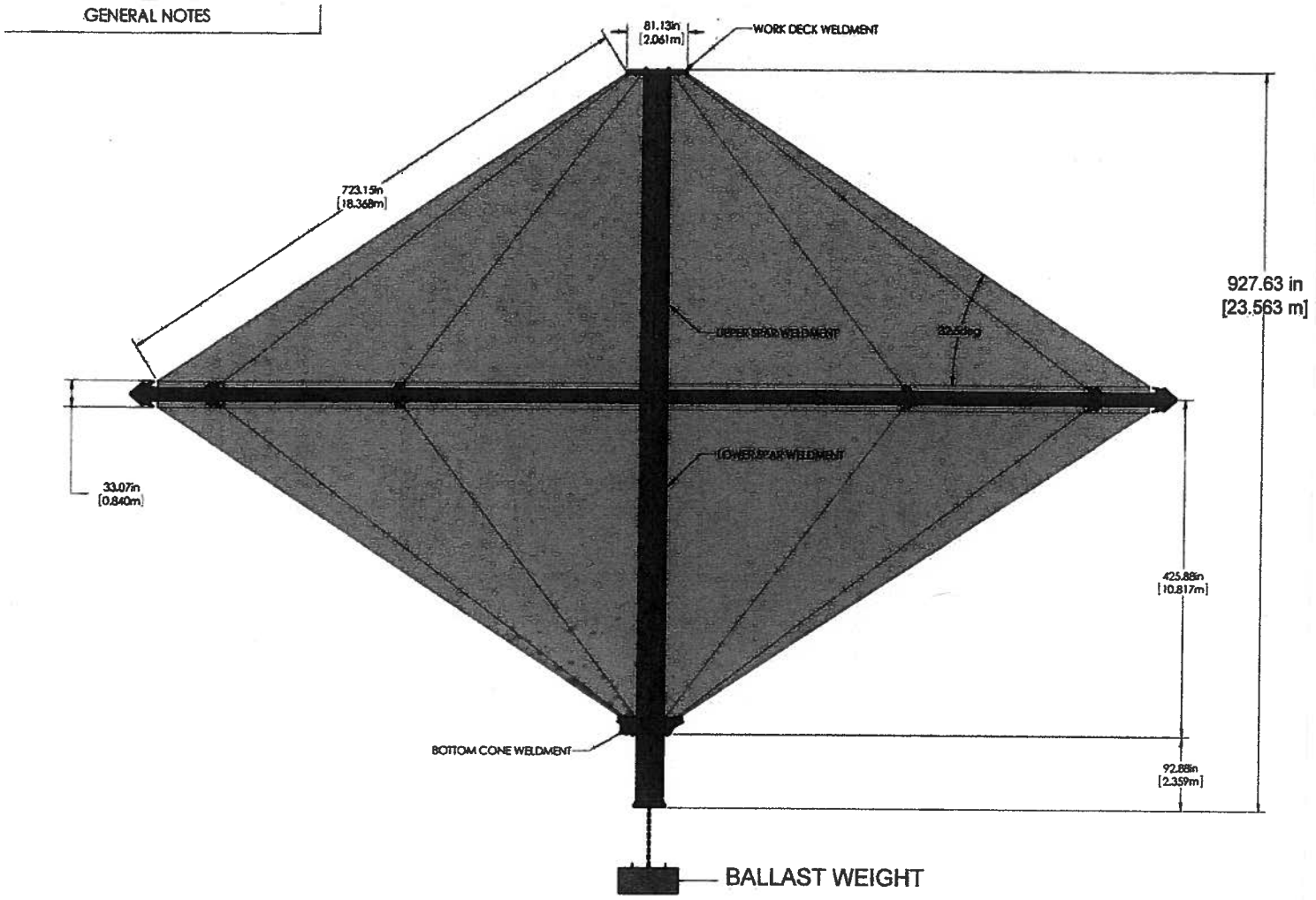


Fig. 4a. Individual Ocean Spar SS6000 cage, side view.

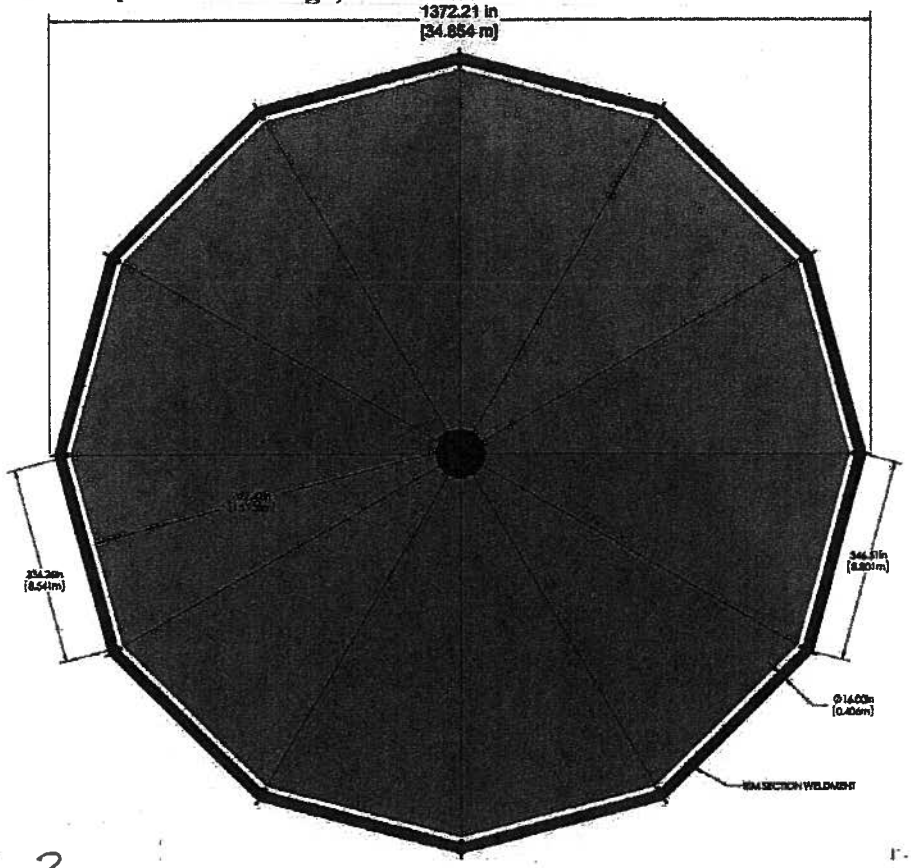


EXHIBIT 3

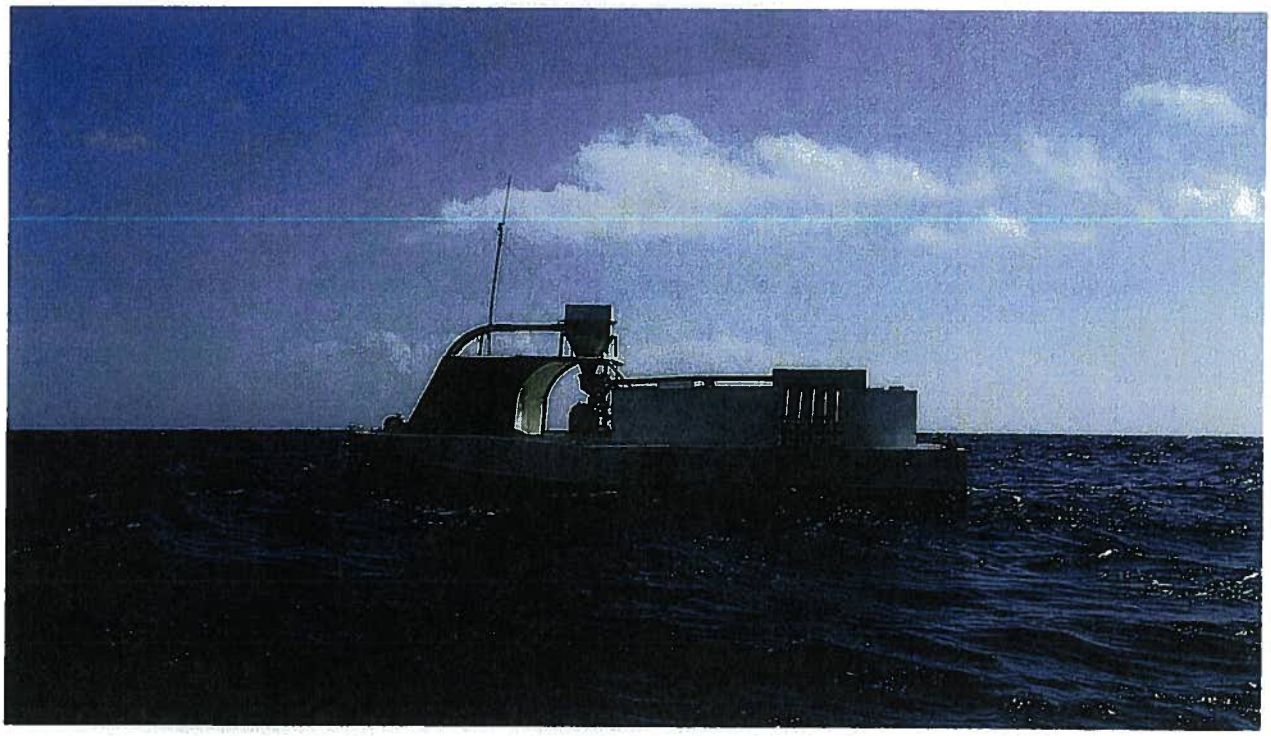


Fig. 6. Prototype feed and security barge on site.

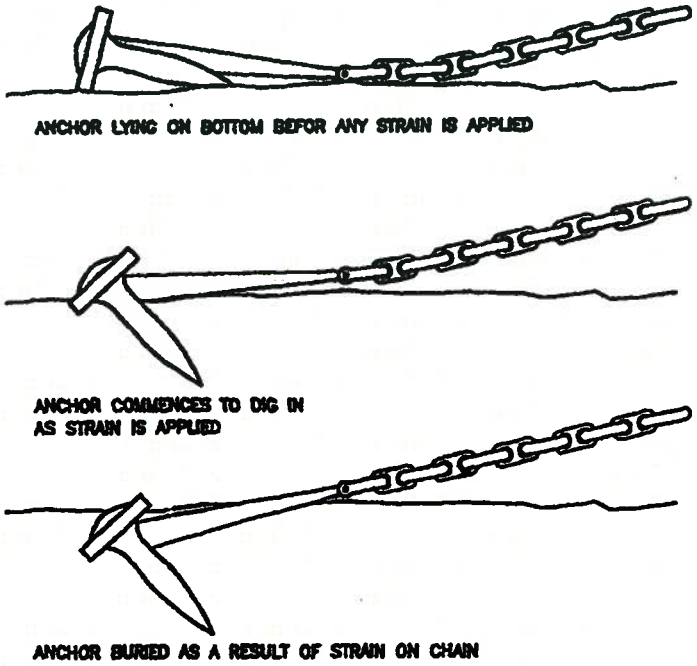
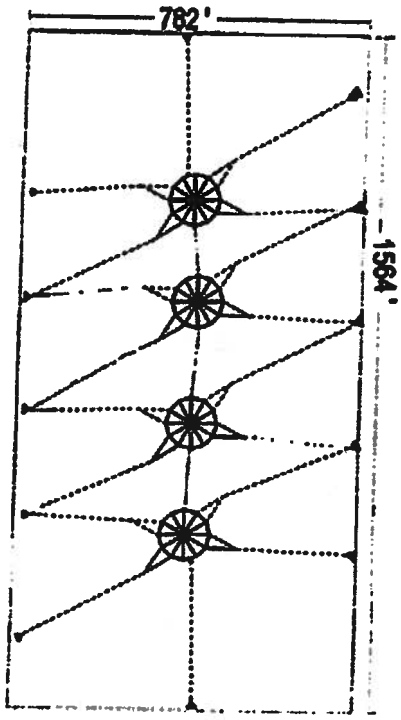


Fig. 7 Danforth anchor in operation.

EXHIBIT 3



N

Fig. 5a. Current approved cage layout.

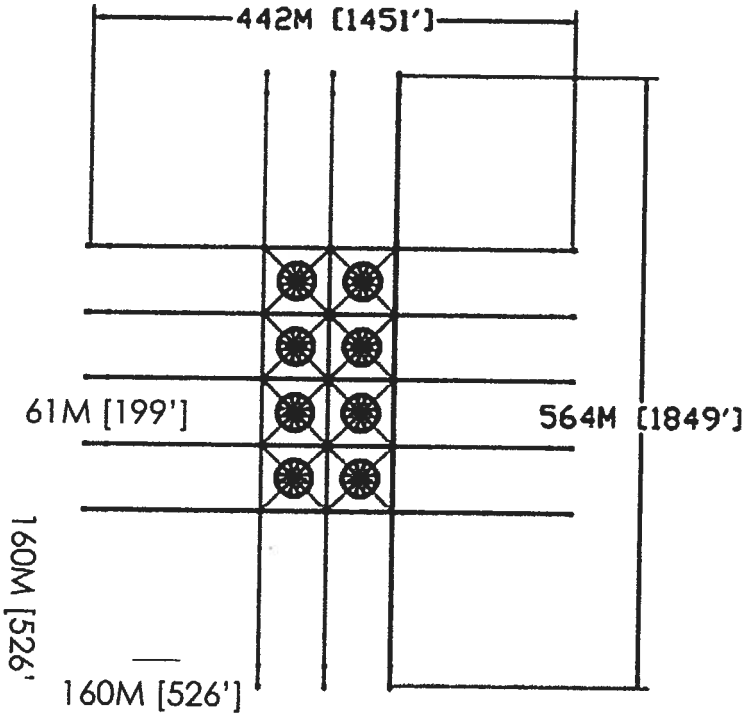


Fig. 5b. Proposed expanded cage layout.

EXHIBIT 3 Current cage Layout vs. Proposed Layout

Appendix E - Management Plan Discussion

Required Information from the DLNR Rules, Section 13-5-39 HAR and exhibit 3.

1) General Description

- Proposed land use in general terms - HF is proposing to expand its current 28 acre State ocean lease two miles off Ewa Beach, Oahu for aquaculture of moi to 61 acres and increase the size and number of submersible sea cages from four (4) 3000 m^3 cages to eight (8) 6000 m^3 cages. Production capacity will increase from about 1.2 million lbs. per year to up to 5 million lbs. per year. Stocking, harvesting, feeding, and maintenance will be carried out from surface vessels with the cages submerged and the assistance of SCUBA divers.

- Consistency Conservation District and Subzone - Aquaculture, including open ocean aquaculture in State marine waters, is a permitted use in and consistent with the purpose of two of the five subzones in the Conservation District, i.e., the Resource and General Subzones. All State marine waters are in the Resource Subzone. Aquaculture is a permitted use in the Resource Subzone according to Section 13-5-24 HAR and is consistent with the stated objective of this subzone, "to develop with proper management, areas to ensure sustainable use of the natural resources of those areas."

- Location - See Fig. 1.

2) Existing conditions on parcel.

- Ownership - All State marine waters are owned by the State of Hawaii and are administered by DLNR.

EXHIBIT 3 Management Plan Hukilau Foods

- Resources - The requested expansion area is approximately 33 acres and seaward of the existing site. Visual inspection by diver survey indicates it is similar to the existing site, that is the area has no natural relief and has a slightly sloping, barren sandy bottom. No concentrations of fisheries resources or culturally significant resources are evident. Likewise, due to water depths in excess of 150 ft. and distance from shore of two miles, recreational uses other than the occasional troll or drift fisher, have not been observed in the proposed expansion area.

- Threatened or endangered species - The main aquatic threatened or endangered species of concern for Hawaii are: hawksbill turtle, green sea turtle, monk seal, and the humpback whale. Sea bird species have not been observed at the site. Of the species of concern, green sea turtles are observed near the existing cages a few times a year and are not affected by farm activities. Humpback whales on rare occasions (e.g., once a year) have been seen in the vicinity of the farm, but never near the farm.

- Constraints - The expanded site is ideal for sustainable open ocean sea cage aquaculture. The site is on the sheltered leeward side of Oahu, yet has open ocean conditions with strong currents and barren sandy bottom for anchoring cages. Logistics and management conditions in the open ocean are occasionally challenging, but HF has successfully operated commercially for seven years adjacent to the proposed expanded site and has developed technologies and procedures that fit the conditions.

- Existing land uses - There are no existing recreational and commercial uses of the expanded ocean space being requested, with the possible exception of an occasional boat passing through the site enroute elsewhere. HF has successfully operated on the adjacent 28 acre site for seven years without incident.

- Existing CDUP - HF has an existing CDUP, CDUA OA-2989, for its 28 acre farm site. The Company desires to amend the existing CDUP to expand this leased area seaward to 61 acres total.

- Access - As with HF's existing operation, the boating public will be able to transit the 61 acre farm site at will. Sea cages will be operated submerged 30-40 ft. below the surface and the only sea surface structure will be a moored 70 ft. long and 24 ft wide feed/security barge. Limited exclusivity is requested, that is the Company maintains exclusive use of the area immediately around and inside each cage for culturing moi, as well as, the surface feed/security barge anchored on the site. HF is requesting that the leased area be formally designated a no boat anchoring and no snorkeling or SCUBA diving area due to important safety, farm operation and insurance liability concerns. Except for these limitations described above, the boating public may transit the site at will, including the area over the cages and troll and drift fishing may continue to be carried out in the leased area.

- Soils - The expanded area has the same soil or substrate characteristics as the existing lease site. The ocean bottom is sandy, which is highly desirable for securely anchoring sea cages.

3) Proposed Land Uses On Parcel.

<u>For each proposed land use:</u>

- Description of the use - HF is proposing continued use of the expanded site for open ocean aquaculture. The Company desires to expand its current 28 acre State open lease for moi farming to 61 acres and increase the size and number of submersible sea cages from four(4) 3000 m^3 cages to eight (8) 6000 m^3 cages. Production capacity will increase from about 1.2 million lbs. per year to up 5 million lbs. per year. Stocking, harvesting, feeding, and maintenance will be carried out from surface vessels with the cages submerged and the assistance of SCUBA divers. A feed/security barge is to be permanently moored on site to service the farm. Some limitation of public access is being requested by formally restricting any snorkeling or SCUBA diving or anchoring of any boat within the leased area. Boats may continue to transit the site and troll and drift fish.

- Site Plan - See Fig. 2 b.

- Justification that it is an identified land use for the subzone - Aquaculture under an approved management plan is identified as an approved use of the resource subzone under Section 13-5-24 HAR.

- Relationship to existing and other proposed land uses - HF is not proposing any new uses of the ocean space by expanding its existing 28 acre farm lease to 61 acres to increase fish production. No other uses are being proposed for the offshore site.

- Expected timing - The realignment and expansion of the mooring grid to accommodate the eight SS 6000 series cages could begin with the BLNR approval of the CDUA and lease and issuance of a Right of Entry; anticipated by September 30, 2009 or sooner. The general installation plan to upgrade and increase the number of sea cages is to realign and expand the mooring grid to accommodate eight SS 6000 series cages. The existing four SS 3000 cages will be removed and eventually changed to the larger SS 6000 cages, as harvesting of each existing crop is completed. The additional SS 6000 will be deployed, as stocking material is available from the Company hatchery. The Company's goal will be to have the realigned grid system in place, with the larger sea cages installed, within one year of the BLNR approval and no more than three years from that date.

  HF will notify DLNR prior to execution of each new deployment. Factors affecting this schedule include: weather, harvestable fish in the existing four cages, and availability of fingerlings from the Company hatchery. These facilities will be operated for the term of the lease.

- Monitoring strategies - HF staff will be on site daily carrying out feeding and maintenance activities, several times a week for harvesting and every month or so for stocking. Plans are to have 24/7 security cameras on the cages and on the barge to constantly monitor conditions. Farm fish stocks and structures will be regularly monitored which constitutes good farm management practice.

  HF has an existing National Pollution Discharge Elimination System (NPDES), Zone of Mixing (ZOM) Permit from the Department of Health (DOH) that has been in place for seven years to routinely monitor water and bottom quality. The Company will establish a new NPDES/ZOM permit for the expanded 61 acre site. The specific details of the parameters to be measured, sampling sites and frequency of samples for the new permit will be determined in consultation with DOH and third party consultants.

- Environmental Assessment - See the attached Draft Supplement Environmental Assessment for the proposed expansion.

Site plan showing location of all existing and proposed land uses:

- See Fig 2 b for the expanded cage layout.
- Steps to insure that historic preservation concerns are met - There are no historic sites within the proposed leased area or in the vicinity of the site.

4) Reporting schedule.

- Time duration of management plan (start and end dates) - The management plan will be in effect for the duration of the lease, unless amended. Anticipated start date is October 1, 2009, and with an approved 20 year lease, ending date is September 30, 2029.
- Annual reporting schedule - HF will provide an annual report to DLNR describing the project's production and lease rent to be paid on the yearly anniversary of the lease. Other reports will be provided as required, such as those to maintain the aquaculture license (yearly) and the NPDES/ZOM permit (quarterly).
- Annual reporting requirements - The annual report to DLNR will describe farm production for the year and the lease rent owed, along with payment. Another report to DLNR will describe the quantities of moi on site, as required by the aquaculture license. Finally, water and bottom quality parameters and sampling schedule will be worked out with DOH and quarterly reports will be provided to DOH and DLNR.

Required Information From CDUA for Marine Waters. See DEA for additional discussion.

1) Location of proposed aquaculture farm- The existing HF open ocean aquaculture farm is located approximately two miles of Ewa Beach, Oahu. The Company wishes to expand the existing farm seaward for a total of 61 acres under lease, in water depths from 140 ft. to 250 ft (Fig. 1). The site has no significant existing commercial or recreational use and the ocean bottom at the site consists of barren sand that is devoid of natural relief or fishery resources. The proposed eight cage layout consists of a rectangle, roughly perpendicular to the shore.

2) Number of acres and square feet.

The existing lease is 1,221,350 sq. ft. or 28.077 acres.

The proposed expansion is seaward approximately 1,457,685 sq. ft. or 33.51 acres.

The total amended lease area would be 2,679,165 sq. ft. or 61.59 acres.

3) Longitude and latitude coordinates - The proposed eight cage layout consists of a rectangle, roughly perpendicular to the shore. The corners of the rectangle are described by the following latitude and longitude coordinates in decimal degrees.

Northeast Corner: 21.2904 N Latitude; 158.0049 W Longitude.

Northwest Corner: 21.2899 N Latitude; 158.0093 W Longitude.

Southeast Corner: 21.2852 N Latitude; 158.0041 W Longitude.

Southwest Corner: 21.2846 N Latitude; 158.0085 W Longitude.

4) Acres and/or square footage of exclusive use (if any) - Total exclusivity is being requested for the interior of each cage, which contains the fish stock and the immediate area above, below and alongside each cage. The interior volume of the eight sea cages is 48,000 m^3 or 1,694,976 cu. ft. To illustrate the relative scale of this request, the total surface area directly above the eight conical cages is about 2 acres. In addition, exclusive use of the area encompassing the feed/security barge is also requested. The barge encompasses an area of 1680 sq. ft. or .04 acres.

Limited exclusivity or access to remainder of the site is being requested that restricts any boat from anchoring and does not allow snorkeling or SCUBA diving in the lease area. This would encompass 2,592,165 sq. ft. or 59.59 acres. This request for limiting access is being made due to concerns over public and staff safety, potential for interference in farm operations and concerns over liability. The 59 acres is largely utilized to accommodate the submerged mooring system, which is mostly suspended in mid-water. Boats will be able to continue to transit the entire site.

5) Fish species to be cultured - HF will continue to focus on the culture of the popular native species moi, *Polydactylus sexfilis*. Moi, called locally the "fish of kings," is undersupplied to the marketplace from a limited wild fishery and small resident fish population.

6) Hatchery and/or stock techniques - Fingerlings will be obtained year round from HF's hatchery in Kalaeloa, Oahu. Stock will undergo health inspection before being put in the cage. Broodstock moi will be sourced periodically from locations around the main Hawaiian Islands. It has been shown that genetically Hawaii's moi are one population. Successful hatchery technology to mass produce fingerlings has been available for moi for over seven years.

7) Sea Cages description and diagrams(i.e., size of cages, number of cages, type of cages-submersible and /or surface cages), moorings, obstructions, cage mesh - The SS 6000 sea cages are commercially available from Ocean Spar (OS) LLC, Bainbridge, Washington. The bi-conical cages submersible cages are 6000 m^3 in volume and are made with a frame of steel tubing that is 77 ft. tall and 104 ft. in diameter at its widest (Fig. 4a & 4b). The cage frame is covered with a tight 35 mm (1.378 in.) mesh netting of a "Spectra" fiber – an extremely strong, UV resistant synthetic material developed by NASA. Divers enter through zippered opening in the mesh. HF will deploy eight SS 6000 cages on the expanded site.

The mooring grid consists of eight cage ballast weights, and sixteen anchors, as well as, high strength lines, bridles and chains to connect the system. Each cage maintains its upright position in the submerged mode by utilizing a 14,300 lb ballast weight attached at the bottom of the spar (Fig. 4a). The grid is secured by sixteen Danforth anchors each weighing 6000 and 8000 lbs. These anchors are specially designed for anchoring large 250 ft. to 300 ft. ships in sand. The cages and anchors will be tied together by high strength lines, chains and bridles, which are maintained taut. This is essentially the same system HF has operated for seven years without incident.

Cages will be operated submerged and do not require lighting. A feed/security barge will be permanently moored at the site to service the farm and the U.S. Coast Guard requires this structure be marked with Class C navigation lights visible up to one nautical mile distant.

8) Sea cages construction plan (deployment, construction, and anchoring) - The SS 6000 series sea cages are available commercially from OS, Bainbridge, Washington. OS has designed the HF mooring system and advises on site during installation of the cages and mooring grid.

The steel frame and the netting for each cage will be partially pre-assembled at the Company's Keehi Lagoon base. The ballast weights will be fabricated on shore and transferred to the site by a work boat, along with the Danforth anchors. The existing mooring system will be realigned by temporarily moving the four (4) SS 3000 cages off grid, then picking up the anchors and moving them into the new position utilizing a work boat equipped with a heavy winch. Likewise, the new mooring grid and anchors will be connected and positioned seaward of the land using the same process and equipment (Fig. 2 b). A total of sixteen anchors are set approximately perpendicular to the prevailing East to West current for maximum holding power. Next the ballast weight for a cage is lowered to the appropriate position in the array and the sea cage is towed to the site and into position, then connected to the grid.

The general installation plan is to realign and expand the mooring grid to accommodate eight SS 6000 series cages. The existing four SS 3000 cages will be temporarily put back on the realigned grid, and eventually changed to the larger SS 6000 cages, as harvesting of each crop is completed. Realigning the existing grid and adding to it to accommodate the eight large cages, as well as, reattaching the SS 3000 cages to the new configuration, will take approximately 26 days. As it becomes possible to attach the new SS 6000 cages and replace the SS 3000 cages with SS 6000 cages, HF will notify DLNR in advance of each deployment. The completed new configuration with eight SS 6000 cages should be in place within one year of the initial realignment of the mooring grid.

9) Operations(species biology, spawning ,stocking, feeding, farm biology, population genetics, disease, harvesting, damage assessments, maintenance, and cleaning of cages).

- Species issues (including species biology, spawning, stocking, breeding, feeding, farm biology, population genetics and disease) - HF will farm the native species moi, *Polydactylus sexfilis*. Moi are a popular nearshore species that are thinly distributed around all the main Hawaiian Islands. Genetically, the moi in Hawaii are considered to be one stock. Broodstock, up to 100 fish a year, will be sourced by HF from the wild and placed in the HF hatchery for controlled spawning. Moi are protandric hermaphrodites, that is they start off life as males that mature at 20 to 25 cm in length and change to viable egg producing females at between 30 to 40 cm, about three years of age. A 100 fish of both sexes need to be maintained in the hatchery to obtain the necessary ratio of males to females for successful spawning. No selective breeding is anticipated at this time.

  Larval moi are cultured to a fingerling size of 2 to 3 ins. in length utilizing standard marine hatchery procedures and foods, e.g., brine shrimp. Stocking animals are subjected to a health inspection before they are trucked to Keehi Lagoon or Barbers Point Deep Draft Harbor for loading onto a work vessel to transport to the sea cage. Fingerlings are placed in the submerged sea cage with diver assistance, using a pump and hose that carry's fish and sea water into the cage.

- Cage management issues (materials productive life span, rearing, farm waste, harvesting) - The bi-conical sea cages are composed of a steel frame, which is stretched tight with high strength, UV resistant netting. The design life of the steel components is 15-20 years, while the service life of the netting is 10-12 years. Regardless, the frames, netting and components of the mooring system will be inspected regularly by divers and replacement carried out as needed.

  Fingerlings will be grown to market size, about 1 ¼ lbs., in about seven months. Feeding over this time period varies from several times a day to once a day, depending on the growth stage of the fish. Feeding is carried out with the assistance of divers and the feed barge anchored on site. Feed is evenly distributed to each cage through a pump and hoses connected to the barge. The feed is a commercially available, specially formulated slow sinking marine fish diet shipped in bulk from the mainland. The pellets are a mixture of fish meal, agriculture grains, and vitamin/mineral mix, with a crude protein content of 43 %. No additives, such as hormones or antibiotics, are used.

  Farm waste products consist of particulate and dissolved components. Particulate components consist of small amounts of uneaten feed particles and fish feces (particulates from cage cleaning are discussed in the next section). Dissolved components consist of any dissolved feed components and fish metabolites, largely ammonium hydroxide (a nutrient readily absorbed by single celled phytoplankton present in the surrounding ocean). Farm waste products are carried away from the cages by the ocean currents and are highly diluted by the vast volume of ocean water passing through the cages daily. Moreover, the waste products are readily recycled by the animal and plant ecosystem that develops on and around the cage. HF will secure a new National Pollution Discharge Elimination System (NPDES) and Zone of Mixing (ZOM) permit for the expanded farm from the Department of Health and establish a new water quality and substrate quality monitoring program.

  Harvesting will be carried out with the cages submerged using a custom surface vessel and commercially available fish pump to move fish to the surface via a large hose. Divers inside the cage "herd" marketable fish to a portion of the cage, where they are gently pumped to the deck of the support vessel. On the vessel, fish slide into one of two large ice-brine slurry baths to quickly disable them with minimum damage. Fish are then transported whole in the slurry to HF's Keehi Lagoon facility for off loading into containers that are destined for a local wholesaler. No fish processing occurs at sea during harvests and solid waste disposal is the responsibility of the wholesaler and other buyers that process the fish.

- Cage maintenance issues (damage assessments, maintenance, cleaning of cages) - HF staff will be monitoring (diving on) the lease site every day, seven days a week, while carrying out stocking, feeding, harvesting, and maintenance. Cage maintenance is of three types: 1) Inspection of stock for any mortalities and their removal; 2) Repair of various cage components, including the spar, support cables, anchor system and net enclosure; and 3) Cleaning of the cage netting and mooring system.

  Fish stocks are observed daily to determine condition and remove any mortalities. Netting and mooring lines are inspected on a bi-weekly to monthly interval and thus far this schedule has worked very well to avoid breakage problems. If major repairs are needed, the netting or lines will be replaced. Minor repairs can be accomplished by divers, while the cage remains submerged.

Cleaning of attached algae and other marine growth on the cages is carried out by divers using a commercially available Power Washer, consisting of a jet of water. Regular cleaning is important because this material when heavily coated interferes with the free flow of sea water through the cage. Experience shows that cleaning every cage, approximately every two months keeps attached marine growth to a minimum and maintains water circulation. No chemicals are used. Pulverized material is readily dispersed by the currents and assimilated and recycled by the ocean environment.

10) Work vessels (type, location of anchorage) - HF has three diesel-powered work vessels that were specially designed and outfitted for supporting offshore aquaculture and facilitating stocking, feeding, harvesting and maintenance. There are two 50 ft. boats and one 38 ft. boat. These vessels are docked at the Company's support facility located at Keehi Lagoon.

11) Crew - HF senior personnel are licensed to operate the vessels utilized in its farming activities. Depending on the activities scheduled for the day, one or two vessels will usually be on the farm site attached to the grid and each will be occupied by two or three staff.

12) Work hours - In general, staff work on the farm during daylight hours (sunrise to sunset). Depending on the activities scheduled, staff will be on site four to eight hours a day.

13) Estimated total annual production numbers- Farm production capacity will be phased in over the first year to eight SS 6000 cages that can produce up to five million lbs of fish a year. However, the Company does not expect to harvest at or near this maximum capacity until at least year three. Fine tuning hatchery production of fingerlings to fully stock cages; hiring and training competent staff , both for the hatchery and for the grow-out cages; and understanding the supply and demand characteristics of the marketplace at these larger volumes of production will take some time to efficiently and effectively manage.

14) How cages will be removed - Should the cages need to be removed, the process will basically be the reverse of the installation process. An empty cage will be disconnected from the grid and towed to its Keehi Lagoon facility, where it will be disassembled. The ballast weights will be disconnected from the grid and lifted to a work vessel one at a time to be transported to HF's Keehi facility. Next the connections for the mooring grid, the heavy ropes and bridles, will be disconnected and brought aboard a work vessel. Finally, the sixteen Danforth anchors will be raised one at a time and placed on a work boat, for transport to the Keehi Lagoon base.

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Submitted to Applicant and Consultant on June 22, 2009 via email at rcates@hukilaufoods.com and jscorbin@aol.com, respectively.

Submitted to approving agency via fax at 808-587-0455, on this same day.

RE: Proposed Expansion of Hukilau Foods Offshore Fish Farm, Mamala Bay, Oahu, Hawaii – Draft Environmental Assessment

Dear Mr. Cates:

On behalf of Food & Water Watch (FWW),[1] I write to express the organization's concerns about the content of the Draft Environmental Assessment (DEA) submitted by Hukilau Foods (HF) for the proposed expansion of Hukilau Foods Offshore Fish Farm. For the reasons outlined below, the Department should not move forward with these plans and should reject this DEA as inadequate. Instead, an environmental impact statement is the appropriate mechanism by which to address the proposed expansion.

Overarching Concerns With Open Ocean Aquaculture

Without adequate safeguards, open ocean aquaculture could damage marine ecosystems, threaten the livelihoods of fishermen and those employed in the tourist industry, and interfere with important cultural traditions and resources.

Open ocean aquaculture is highly controversial, and a variety of publications by researchers, NGOs, and government offices have noted problems associated with the development of this industry. International experience from offshore fish farms should give DLNR cause for concern. Water flowing out of industrial fish farms carries excessive nutrients (e.g., phosphorus and nitrogen),[2, 3] particulates, metals,[4] pesticides[5]

[1] FWW is a national non-profit consumer advocacy group that works to promote clean, safe seafood for consumers and the use of common resources for the public benefit.
[2] Holmer, M. et al. "Sedimentation of organic matter from fish farms in oligotrophic Mediterranean assessed through bulk and stable isotope (δ13C and δ15N) analyses." *Aquaculture,* 262: 268-280, 2007.
[3] Islam, Md. Shahidul. "Nitrogen and phosphorus budget in coastal and marine cage aquaculture and impacts of effluent loading on ecosystem: review and analysis towards model development." *Marine*

and other chemicals that may pose serious problems to water quality and the environment.[6] For example, a salmon farm of 200,000 fish releases as much nitrogen, phosphorus, and fecal matter into the water as is present in the untreated sewage from 20,000, 25,000 and 65,000 people, respectively.[7] Such waste can contribute to eutrophication in nearby waters,[8] leading to harmful algae blooms, fish and seabed animal kills, and shellfish poisoning.[9]

Studies have also found increased mercury contamination in surrounding wild-caught fish populations. In one instance, researchers sampled fish caught in the traditional fishing grounds of indigenous people and found that mercury was significantly higher in wild fish caught near the salmon farms than far from them. This contamination was attributed to fish-farm waste, which may be altering the food web, forcing wild fish to eat more highly contaminated organisms. The researchers also believed that the fish farm waste might be tainted with mercury and might be altering water chemistry to make the mercury in surrounding sediments more easily absorbed by aquatic organisms.[10] In addition, the escapement of fish from ocean fish farms is another chronic problem.[11]

Moreover, a large body of scientific literature exists demonstrating that the use of a wide variety of antibiotics in aquaculture results in increased antibiotic resistance in fish, and the transfer of these resistant pathogens to the bacteria in land animals and to human pathogens. The use of large amounts of antibiotics increases the opportunities for the presence of residual antibiotics in meat and fish products, and thus possibly undermines the ability of doctors to effectively treat human infections.[12]

Furthermore, while fish farming is touted as a way of reducing the pressures on depleted fishing populations, marine aquaculture's feed requirements may actually increase these pressures due to a necessary diet of large quantities of fishmeal and fish oil.[13] Already, fish farms use a significant portion of world supply of fishmeal and fish

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Pollution Bulletin, 50,1: 48-61, January 2005.

[4] Choi, Monica Heekyoung and Cech, Joseph J. "Unexpectedly High Mercury Level in Pelleted Commercial Fish Feed." *Environmental Toxicology and Chemistry*, 17(10): 1979-1981, 1998.

[5] U.S. Environmental Protection Agency, "Economic and Environmental Benefits Analysis of the Final Effluent Limitations Guidelines and New Source Performance Standards for the Concentrated Aquatic Animal Production Industry Point Source Category," June 2004.

[6] *Id.*

[7] *See* Goldburg, R., Elliot M., and Naylor, R., "Marine Aquaculture in the United States, Environmental Impacts and Policy Options," 2001, citing Hardy, R.W., 2000b, Fish, Fish feeds, & Nutrition in the New Millennium, *Aquaculture Magazine* 26 (1): 85-89.

[8] *Id.*

[9] *See* Scottish Association for Marine Science and Napier University, "Review and Synthesis of the Environmental Impacts of Aquaculture, 2002."

[10] Dubruyn, A.M., Trudel, M. Eyding, N.A., Harding, J., McNally, H., Mountain, R., Orr, C., Urban, D., Verenitch, S., Mazumder, A., Ecosystemic Effects of Salmon Farming Increase Mercury Contamination in Wild Fish, Environ. Sci. & Technol. Published on web April 19, 2006.

[11] "Norwegian Aquaculture: Status Report." *Aquaculture Magazine*, 33(1): 19-21, January-February 2007.

[12] Reviewed in Cabello, F.C., *Heavy use of prophylactic antibiotics in aquaculture: a growing problem for human and animal health and for the environment*, Environmental Microbiology (2006) 8 (7), 1137–1144.

[13] Naylor, R.L., Goldburg, R.J., Primavera, J.H., Kautsky, N., Beveridge, M.C.M., Clay, J., Folke, C., Lubchenco, J, Mooney, H. and Troell, M. Effect of aquaculture on world fish supplies, *Nature* 405, 1017–

oil from wild marine sources, such as sardines, herring, and menhaden.[14] Removing these fish from the ocean to feed farmed fish denies food to whales and other ocean mammals and to larger predatory fish and sea birds.

Offshore aquaculture could have negative socioeconomic effects, as well. Offshore aquaculture could harm U.S. fishing communities, which are dependent on healthy ecosystems and wild fish populations for their economic livelihood. Fish farming could also harm the existing U.S. fishing industry by lowering prices for wild fish caught by U.S. fishermen.

Given the potential dangers posed to the environment, consumers, and fishermen by industrial fish farming, we urge the DLNR to act cautiously so that this project does not cause some of the same types of problems.

Overview Of The Proposed Expansion

As stated in the DEA, HF offshore fish farms proposes to quadruple its industrial production of farmed moi from 1.2 million pounds per year to up to 5 million pounds per year. It plans to do so by doubling the number of sea cages (from four to eight), with each cage doubling in size (from 3000 m^3 to 6000m^3). In 2007, HF was filling each cage with 130,000 Pacific Threadfin (aka moi). This would mean that each cage in the proposed expansion would contain 260,000 moi. Multiplied by eight cages, and the amount of moi raised at a given moment would be a whopping 2,080,000 fish.

This would mean that the amount of fish waste coming from the project would be approximately equal to the amount of untreated sewage generated by the entire city of Boston. Yet despite these numbers, HF believes that the crowding of over two million fish in tight quarters will have no impact on the marine environment, and that their feces will simply wash away. HF appears to subscribe to the old and erroneous rhyme: "the solution to pollution is dilution."

The current HF fish farming operation is located near a known dead zone, a protected marine sanctuary, a coral reef, and within an area contaminated by dredged material in Mamala Bay. Nonetheless, HF desires to expand its current ocean lease of 28 acres to 61 acres, to allow room for the extra sea cages. In addition, while it requests permission to permanently moor a feed/security barge on site, it simultaneously seeks to restrict the anchoring of all other boats within the 61-acre expanse. Furthermore, to decrease its "insurance liability," it requests an outright ban on snorkeling or SCUBA diving within its area. Installing new cages also means removing the old ones and their anchors, and re-mooring the new structures, using sixteen "Danforth" style anchors (two per sea cage). Each anchor weighs 6,000 – 8,000 pounds and is designed to penetrate the

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1024 (2000).

[14] Tacon, Albert et al. "Use of Fishery Resources as Feed Inputs to Aquaculture Development: Trends and Policy Implications." FAO Fisheries Circular No. 1018, Food and Agriculture Organization of the United Nations, Rome, 2006.

sea floor. The central cement ballast weight of the sea cage that rests on the ocean floor weighs 14,300 pounds.

While the DEA states that HF has never received a single complaint in all of its years of operation, it apparently fails to mention several freely-available reports outlining several deficiencies with the HF industrial operations, as discussed below.[15]

Comments

The DEA Inadequately Assesses the Project's Cumulative Impacts.

The DEA's discussion of the proposed HF expansion is completely inadequate. In less than half a page (see p. 41), the DEA dismisses of cumulative impacts by merely restating the tired proposition that because of the strong currents, all wastes will wash away and any impacts are expected to be "manageable and insignificant." It avoids examining other activities in the area, which, in conjunction with the proposed expansion, might play a significant role in environmental degradation.

The DEA fails to consider publicly available data from the U.S. Geological Survey on Mamala Bay area off of Ewa Beach. This area, which includes the location of the HF fish farms, was found to have been contaminated by other human caused activities: "For more than a century, material dredged from Pearl and Honolulu Harbors has been dumped in Mamala Bay off Oahu, Hawaii. Human activities add other materials to the bay as well: wastewater from Honolulu and its suburbs, shipyard contaminants and lead paint from ships, agricultural fertilizers leached from fields. *It is not known how the dredged material and contaminants are affecting the environment"*(emphasis added).[16] Neither is it known how the excess food and fecal pollution from the HF sea cages interacts with these elements.

The DEA also fails to address the dead zone located just off the coast of Ewa Beach (Virginia Institute of Marine Science), as well as the cumulative impacts that the proposed expansion would have on the Barbers Point Marine Protected Area, found just southwest of the dead zone. In fact, there is no effort to even determine the cause of the dead zone – that is, whether the excess nutrients are due to the years of operation of Mr. Cates' fish farms, runoff from the island, or a combination of both.

In an earlier section of the DEA (see p. 25), it states that HF is proximate to a coral reef (1,800 feet away), but outright dismisses this as a problem, stating that "the prevailing currents" take the refuse away from the reef. More information is needed about the "repeated sampling" that demonstrated there was no effect on the coral reef. What were the findings? Who did the sampling? FWW recommends that HF use effective water quality models to achieve a more accurate prediction of the effects of pollution, such as the SUNTANS model, detailed on pp. 5-6.

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[15] [Ostrowski piece, Report of Marine Aquaculture Task Force.]
[16] http://walrus.wr.usgs.gov/mamalabay/

Finally, there is no mention of the statewide cumulative impacts that this fish farm along with the others currently in operation (Kona Farms – yellowtail; Indigo Farms – moi, and potentially grouper and porgies) and soon to be planned (Hawaiian Ocean Technology, Inc. – ahi tuna) would have on the regional water quality. In sum, the cumulative impacts section of the DEA must be entirely redone, and an honest and meaningful analysis should take its place.

The DEA Fails To Adequately Consider Water Quality And Benthic Impacts From Quadrupling Production.

Under the Hawaii Environmental Policy Act, an environmental impact "statement shall be required if the agency finds that the proposed action *may* have a significant effect on the environment."[17] (Emphasis added.) Despite this low threshold, a draft environmental assessment for the expansion of HF was deemed to be the appropriate document, because "a finding of no significant impact is anticipated."[18] This anticipated outcome is conclusory and neglects the strong possibility that a quadrupling of fish production, wherein wastes are still not contained, "may have a significant effect on the environment."[19] This section outlines the significant impacts that may occur with this project, and given that the low threshold requirement is exceeded, an environmental impact assessment is surely needed for this proposed expansion.

The DEA concludes that because the farm's maximum fish densities will likely remain largely the same, the quadrupling of fish production will have an "insignificant" impact on the water column and substrate under each cage. This flawed logic fails to appreciate the sheer magnitude of quantity of pollution; the agency merely focuses on density. The two must be considered in conjunction in order to better assess the true impacts of pollution.

Further, it is not enough for the project to look at fish density. The impacts of aquaculture facilities are highly variable and location specific. "The effects of effluents resulting from cage and other forms of aquaculture activities depend primarily on the annual fish production, production area and depth...and water resistance time... [T]he environmental effects...are also site specific and depend largely on the prevailing physico-chemical and biological features of the receiving environment."[20] Without such an analysis, the DEA's analysis is, at best, incomplete.

The DEA applies the same flawed assumption that the "mixing" ability of the open ocean will effectively wash away the wastes that the project itself removes. Acknowledging that the cages accumulate algae and other marine growth that impairs the free flow of seawater through the netting, HF uses divers to spray a heavy jet of water to "dislodge [the] material" approximately every 2 months. Without any analysis, the DEA reads: "Pulverized material is readily dispersed by the currents and assimilated and

[17] HRS §343-5 (b)(1)(D)
[18] HRS §343-5 (b)(1)
[19] HRS, *supra* note 17.
[20] See e.g., Islam, *supra* note 3.

recycled by the ocean environment." There is no information on the quantity of accumulated matter that is washed off, its composition, or why one would assume that it would have no impacts and simply be assimilated by the ocean.

In fact, on p. 37 of the DEA, it contradicts its previous "assimilation and no impact" argument by stating that the pulverized material actually *helps* maintain the local ecosystem. Of course, notwithstanding the contradiction, this statement neglects the fact that excess nutrient-spurred algal blooms, like the ones that attach to the sea cages, are commonly known to absorb massive amounts of oxygen when they sink to the sea floor, and create the feared hypoxic "dead zones."

In section 5.3.2 (beginning on p. 29), the DEA displays a series of highly technical and impressive-looking charts to demonstrate the quality of the water and the benthic community. A SCUBA diver conducted a visual survey of the ocean bottom of the proposed expansion area (photo shown in Fig 14). However, no further analysis is taken – the conclusion is literally that because it looks the same as the current barren sea floor, it must be the same.

In reality, the project has had problems from its start. Originally, the Hawaii Pacific University's Ocean Institute had found that worms associated with fecal pollution had appeared "rapidly" and "became much more abundant under the net cage."[21]

And while the DEA reports a change in the polychaete species composition beneath the sea cages, and attributes this to the presence of organic enrichment of the sediments, it states that "they do not have great ecological significance" simply because similar changes in composition can also occur from other sources, and not just sea cages. It also claims when the sea cages are empty for six months straight, the DEA alleges that the sea floor returns to its previous state, and concludes that there are no long-term impacts on ecosystem health.

The applicant's conclusion that there would be no long-term effects could not be further from the truth. A study in 2006 revealed that the facility had "grossly polluted" the seafloor and "severely depressed" certain types of sealife.[22] The authors conclude that the changes in benthic infauna over the course of the study follows a typical pattern for organic enrichment of sediments, as the site under the sea cages evolved into a highly polluted site and the site 80 meters down-current followed, indicating that the benthic effects had spread well beyond the physical footprint of the sea cages. Notwithstanding the "open water" location of sea cages and robust longshore current, substantial alteration of the benthic environment resulted from commercial marine aquaculture operations.[23]

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[21] Ostrowski, Anthony C. et al. "Hawaii Offshore Aquaculture Research Project (HOARP) – Phase II. Final Report." NOAA Sea Grant Award No. NA86RG0041, Ocean Institute, Waiamanalo, HI, Aug 31, 2001.

[22] Lee, Han W. "Temporal changes in the polychaete infaunal community surrounding a Hawaiian mariculture operation." *Marine Ecology Progress Series,* 307:175-185, January 2006.

[23] Sustainable Marine Aquaculture: Fulfilling the Promise; Managing the Risks. Report of the Marine Aquaculture Task Force, January 2007, at 74.

These findings directly refute claims that there are no impacts from the waste and excessive nutrients, and that the open ocean waters simply wash all the filth away.

Instead of just snapping photos of the sea floor and then drawing specious conclusions, HF should employ state-of-the-art, water-quality modeling. Other fish farms already implement water quality models to better predict the impacts that pollution will have on the marine environment. The proposed Hubbs-Sea World project in San Diego had an AquaModel simulation prepared in order to analyze the water and sediment effects of fish mariculture at the proposed project.

Further, even more recent and accurate models are now available for HF's use. Researchers of the SUNTANS (Stanford Unstructured Nonhydrostatic Terrain-following Adaptive Navier-Stokes Simulator) project have found that waste plumes from fish farms retain coherence and maintain high concentrations over much longer distances than was previously believed. The SUNTANS model highlights the importance of wake vortex dynamics created by a given array on the concentration and coherence of waste plumes discharged by aquaculture operations.[24] The SUNTANS Model predicts a different waste plume behavior under the oscillatory flow conditions than the Gaussian plume dispersal predictions employed in AquaModel simulations. In short, the SUNTANS Model reveals that waste from fish farms can spread farther, and in higher concentrations than was previously believed.

HF should certainly take advantage of the opportunity to use the SUNTAN model to analyze pollution effects of the proposed expansion.

The DEA's Analysis of HF's Escaped Fish Is Inadequate.

The DEA states that "to date, there has been no known escape of fish from HF cages over the seven years of commercial operation." This analysis is highly inadequate. It is commonly known in the industry that escape rates tend to average around 5%. Over seven years of commercial operation, thousands of fish are likely to have escaped. To not be aware, then, of a single moi escaping, suggests nonexistent monitoring.

Perhaps worse, HF argues that even if a fish did escape, it is only helping with the state's restocking efforts. HF places the bulk of its argument in the fact that the moi are derived from local, wild stock. The DEA states genetic mapping of the species reveals that all are from the same genetic stock. While HF states that the initial broodstock is sourced from wild populations, these farmed populations are only replenished annually through capturing 100 juvenile and adult fish as the broodstock.

However, even escaped native fish can do great harm. "Escaped farmed fish can negatively impact the environment and wild populations of fish whether they are native or exotic to the area in which they are farmed, and the probability of significant

[24] Venayagamoorthy, S. K., Fringer, O. B., Koseff, J. R., Chiu, A. and Naylor, R. L. 2008. "Numerical modeling of aquaculture dissolved waste transport in a coastal embayment," submitted.

ecological impact increases as the number of escaped individuals increases."[25] For example, extensive research shows that the escape of farmed fish into the ecosystem can result in competition for food and space and predation on native species.[26] Other scientific literature indicates there are harmful effects that result from the escapement of farm-raised fish, even if they are native, if, due to inadvertent selection by the novel environment (e.g., reduced fright response, disease resistance, and altered aggressive behaviors), they are not adaptive in the wild.[27] For example, a recent 2007 Oregon State University study published in the journal *Science*, demonstrated that the reproductive success of steelhead trout could drop by close to 40 percent per captive-reared generation.[28]

These are but some of the problems that prompted The Marine Aquaculture Task Force, a consensus group made up of scientists, industry representatives, and conservation organizations, to conclude that "there are significant risks to ecosystems through escapes from aquaculture and that management measures should be taken to eliminate or minimize those risks."[29]

The DEA Fails To Assess The Impact Of The HF Project On Forage Fish Populations.

The DEA describes the method of feeding in great detail yet provides very little information on feed composition. One of the most important characteristics regarding evaluation of an operation's sustainability – its wild fish feed to farmed fish ratio – is completely ignored. Most carnivorous finfish raised in offshore fish farms require, on average, anywhere from 2-6 pounds of wild fish (either in the form of fishmeal or fish oil) to feed one pound of farmed fish. Processing such large quantities of forage fish into pellet form and then feeding them again to farmed fish is the epitome of unsustainable, and actually exacerbates the overfishing problem. The DEA states that the "pellets are mixture of fish meal, agriculture grains, and a vitamin/mineral mix, with a crude protein content of 43%." No information is given on the actual percentage of fishmeal or fish oil used, nor what kind of fish is used to feed to the Hawaiian moi, nor where the forage fish are sourced. More information is needed about the statewide (or nationwide) impacts of using wild forage fish for feed, because of the environmental effects of removing this critical link from the food chain.

The DEA Fails To Assess The Potential Disease Impacts From The HF Project.

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[25] See e.g.. Miranda, I.T. & Peet, C. 2008. "Seafood Watch Seafood Report: Farmed Yellowtail."
[26] Marine Aquaculture Task Force, *supra* note 8 (citing Gross, M.R. 1998); One species with two biologies: Atlantic salmon (Salmo salar) Aquatic Sciences 55(Suppl. 1):131–144)
[27] National Research Council, *Genetic Status of Atlantic Salmon in Maine: Interim Report*, 2002 at pp. 20-21.at p. 21.
[28] Oregon State University (2007, October 5). Salmon And Trout Hatcheries Cause 'Stunning' Loss Of Reproduction. Science Daily. Retrieved January 8, 2008, from http://www.sciencedaily.com/releases/2007/10/071004143128.htm.
[29] Sustainable Marine Aquaculture, *supra* note 23, at 49.

Merely noting that "HF is striving to be a leader in marine finfish biosecurity," and is "diligent in applying best management practices" is entirely insufficient. The DEA is supposed to evaluate the potential impacts of the transfer of disease from farmed moi to wild fish populations, and the drafters appear to not have taken this section seriously.

In Chile, for example, the salmon farming industry experienced a catastrophic decline in product output, due to various diseases ravaging most of the farmed fish in the region. Wild stock also suffered from these outbreaks. A study by L. Neil Frazer, from the University of Hawaii at Manoa, noted that: "Sea lice epidemics, together with recently documented population-level declines of wild salmon in areas of sea-cage farming are a reminder that sea-cage aquaculture is fundamentally different from terrestrial animal culture... a sea cage... becomes an unintended pathogen factory."

The DEA only covers the procedures adopted by HF for monitoring, which appear to be little more than an explanation of standard industry practice. It does not evaluate the likelihood of outbreaks. Yet even this reveals areas of concern, for after the moi are placed into the pens, HF waits a full four months before testing for diseases.

The DEA Fails To Assess Reasonable Alternatives.

The evaluation of alternatives section is appalling. It first evaluates the option of stocking the moi in even higher densities, and then declines doing so, not based on the obvious environmental implications, but because of reduction in value of fish because of discrepancies in fish size and excessive stress. It rejects searching for other areas outside of the leasing vicinity, but for some reason, it limits itself to water. Why does it not consider land-based alternatives, particularly recirculating aquaculture systems, where untreated discharge is not emitted into the waterways? Several such facilities are in commercial operation on the mainland, and sustainable operations currently exist in Hawaii.

The "no action alternative" argues that if it does not expand its operations by quadrupling output, then moi production for the local market would continue to be "inadequate." The DEA does not state what the current demand is, and whether HF is exceeding that demand. It states that there would be no increase in employment, but the speculative increase of fourteen people is underwhelming, particularly given that there is no promise to keep additional staff after the transition period is over. Oddly enough, the DEA notes that not expanding would suppress "opportunities to further refine sustainable open ocean aquaculture technologies for Hawaii," but given the unsustainable nature of such operations to begin with, it seems clear that the appropriate avenue for experimentation would be small-scale scientific projects, and not a "wait-and-see" approach of quadrupling production.

The DEA Fails To Adequately Assess Endangered Species Concerns.

Under HI ST § 195D-4(a), "[a]ny species of aquatic life, wildlife, or land plant that has been determined to be an endangered species pursuant to the Endangered Species

Act shall be deemed to be an endangered species under this chapter and any indigenous species of aquatic life, wildlife, or land plant that has been determined to be a threatened species pursuant to the Endangered Species Act shall be deemed to be a threatened species under this chapter." Given the many federally-protected endangered species seen at the site, as noted in the DEA, there are consultation requirements "if the applicant has reason to believe that an endangered species or a threatened species may be present in the area affected by his project and that implementation of such action will likely affect such species."[30] The state laws require virtually identical consultation requirements.

Moreover, Hawaii's Department of Land and Natural Resources must consult with the state's endangered species recovery committee before authorizing any incidental take permits, and only after following the stringent criteria outlined in HI ST 195D-4(g). Additionally, and particularly given the eyewitness accounts of numerous federally-protected species in the area, the DLNR should "work cooperatively with federal agencies in concurrently processing habitat conservation plans, safe harbor agreements, and incidental take licenses pursuant to the Endangered Species Act."[31] This may include consultation requirements with NOAA. In addition, The Marine Mammal Protection Act requires consultation to determine the effects that activities will have in the killing, injury, or harassment of marine mammals – also witnessed in the area.

The DEA remains entirely silent as to whether any of these consultations or analyses were done; instead, it appears that the extent of the DEA's inadequate analysis is that HF employees saw some endangered species swim by, and noticed that they did not get tangled in the sea cages.

The DEA Fails To Adequately Assess Economic Impacts.

HF argues that it will impact the Hawaii economy by increasing employment opportunities, benefiting local support industries, and increasing opportunities for Federal research dollars. HF argues that if this increased expansion is not approved, then another company will receive federal taxpayer support and Hawaiians will all suffer. HF and its predecessor have already relied heavily upon $1.5 million in direct or indirect support from NOAA. When in its first year of operation, the experiment with moi was "sub-economic" and would need to triple production to be economically viable.[32] Given the substantial economic help in the past, it needs to be asked whether this operation is truly financially sustainable, or would Hawaiian residents be forced to subsidize the private operations once the federal money stops.

HF currently employs eleven people, and hopes to hire fourteen more people with the expansion. The increase of fourteen additional people hired statewide is insignificant, particularly given that there is no promise to keep these staff beyond the transition period.

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[30] ESA, 16 § 1535(a)(3)
[31] HI ST § 195D-4(i).
[32] Food & Water Watch. *Fishy Farms*, pp. 11-12.

Perhaps worse, the DEA provides no analysis of how this project's expansion might impact commercial fishermen. For example, the project seemingly bars all non-small- recreational fishermen, especially those who wish to anchor, from accessing the 61-acre expanse. The DEA does not analyze the impacts that this will cause to fishermen as fish aggregate around the HF project, instead of favorite fishing grounds.

Further, the DEA fails to anslyze the impacts of the HF expansion on fish prices, as a large amount of farmed moi will be dumped into the market, potentially driving down prices.

The DEA Fails To Adequately Assess The Project's Historic and Cultural Resources Impacts.

The DEA's evaluation of the potential impacts the expansion would have on cultural practices and resources is woefully inadequate. In neglect of the importance of the ocean to Hawaiian native populations, along with the Hawaiian Constitution's call to protect natives' rights,[33] the report "confirms" that "...the open ocean site does not contain any known historic resources or traditional and culturally important sites[,]" through a "a recent interview with a knowledgeable Hawaiian fisher," and meetings with the EWA Beach Neighborhood Board. Talking to a non-indigenous Hawaiian fisherman about cultural impacts to indigenous peoples is not sufficient.

Further, the DEA mentions that sand bar sharks are regularly seen around the cages, and that tiger sharks are occasionally spotted. So far, HF reports no problems with the sharks. But given that Kona Blue Water Farms, a fish farm often cited in this DEA, recently killed a tiger shark that regularly appeared around its facility, it must be asked what does HF plan to do if a particular shark becomes persistently attracted to the moi. After all, sharks are revered in Hawaiian cultural lore as an *aumakua*, a family guiding spirit or totem, so this would certainly raise cultural sensitivity issues.

The DEA Inappropriately Inflates The Project's Benefits.

Finally, we must look at the facility's potential benefits, as touted on page 8 of the DEA. The project cannot continue to "demonstrate that commercial open ocean fish farming can be carried out in an environmentally sound, economically viable manner," when so many elements of the operation are unsustainable, and it is so heavily reliant upon federal subsidies. The purported employment benefits, as addressed above, are insignificant; worse, there is the possibility that the proposed expansion could drive Hawaiian fishermen out of business and create a statewide net loss of jobs.

Further, the DEA fails to demonstrate that local purchasing of equipment and supplies will increase, because it fails to show that HF currently sources its supplies

[33] Article XII, Section 7 of the Constitution of the State of Hawaii reads: "The State reaffirms and shall protect all rights, customarily and traditionally exercised for subsistence, cultural and religious purposes and possessed by ahupua's tenants who are descendants of native Hawaiians who inhabited the Hawaiian Islands prior to 1778, subject to the right of the State to regulate such rights."

locally. It is known that the sea cages are manufactured in Washington, so the addition of cages will not benefit for local manufacturers. While Mr. Cates will indeed be supplying more moi to resident and tourist markets, there is no indication that there is a demand for fish that is not being met by existing wild fish populations.

Conclusion

The DEA fails to provide adequate information about the new installation of sea cages, the source and components of the massive amount of feed that will be purchased and discharged into the ocean, the untreated waste, or the true impacts on the ecosystem and marine animals. It also fails to prove that the environmental or cultural impacts can be mitigated. FWW urges DLNR to adopt the precautionary approach, reject this DEA, and to conduct a full-scale environmental impact statement, taking into consideration cumulative impacts and true evaluation of alternatives, and to not move forward with HF's proposed expansion at this time.

Sincerely,

Marianne Cufone
Director, Fish Program
202-683-2511
mcufone@fwwatch.org

12

Kanaka Council Moku O Keawe

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Testimony submitted by: Kale Gumapac, Alaka'i

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dba Hukilau Foods LLC
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Department of Land and Natural Resources
Office of Conservation and Coastal Lands
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Honolulu, HI 96813.
Contact: Chair Laura Thielen
Tel: 587-0377
Fax: (808) 587-0322 or via e-mail at dlnr.occl@hawaii.gov

Re: COMMENTS ON DEA for the Hukilau Foods Offshore Fish Farm, Mamala Bay, Oahu, Hawaii

(Declarations of Rights – 1840- by King Kamehameha III - Kingdom of Hawaii Constitution)

"God hath made of one blood all nations of men to dwell on the earth," in unity and blessedness.

God has also bestowed certain rights alike on all men and all chiefs, and all people of all lands. These are some of the rights which He has given alike to every man and every chief of correct deportment; life, limb, liberty, freedom from oppression; the earnings of his hands and the productions of his mind, not however to those who act in violation of laws.

God has also established government, and rule for the purpose of peace; but in making laws for the nation it is by no means proper to enact laws for the protection of the rulers only, without also providing protection for their subject; neither is it proper to enact laws to enrich the chiefs only, without regard to enriching their subjects also, and hereafter there shall by no means be any laws enacted which are at variance with what is above expressed, neither shall any tax be assessed, nor any service or labor required of any man, in a manner which is at variance with the above sentiments."

(1852- Art.I – Declared by King Kamehameha III of the Kingdom of Hawaii Constitution

"God hath created all men free and equal, and endowed them with certain inalienable rights, among which are life, and liberty, the right of acquiring, possessing, and protecting property, and of pursuing and obtaining safety and happiness."

History shows that the rights of its people were protected by the Declaration of Rights of 1840 and again in 1852 by the Kingdom of Hawaii. It declared protection of their rights to both the Chiefly and native Tenant classes. These rights were not limited to the land, but included the right to "...life, limb, liberty, freedom from oppression; the earnings of his hands and the productions of his mind, not however to those who act in violation of the laws."

The Kanaka Council believes that throughout the history of the Hawaiian Kingdom these rights have not diminished and even the STATE OF HAWAII has a fiduciary obligation to protect all rights as stated under Article XII, Section 7 of the Constitution of the STATE OF HAWAII and House Bill 2895 Section 1 – 'A Bill for an Act – Relating to Environmental Impact Statements."

Article XII, Section 7. **The State reaffirms and shall protect all rights, customarily and traditionally exercised for subsistence, cultural and religious purposes and possessed by ahupua'a tenants who are descendants of native Hawaiians who inhabited the Hawaiian Islands prior to 1778, subject to the right of the State to regulate such rights. [Add Const Con 1978 and election Nov 7, 1978]**

In reviewing the Draft Environmental Assessment (DEA) there are substantial concerns that are not being addressed. We find that the current DEA is not addressing all rights,

culturally, religiously, customarily and traditionally, exercised by ahupua'a tenants who are descendants of the original land owners who inhabited these islands of Hawai'i prior to 1778.

The following issues not being addressed in the EA are violations of the vested rights of the native tenants as recognized by the Kumulipo, Constitution of 1840, Kingdom of Hawai'i, and continued to be recognize by the Constitution of the State of Hawai'i in Article XII, Sec. 7. The Kanaka Council finds the DEA inadequate in relation to cultural, customary, traditional and religious rights and would like to have the following questions addressed and answered before the DEA is approved.

1. How extensive was your search for Lineal heirs of the land, ocean and traditional, cultural, religious practitioners?
2. Where in the DEA does it show that State of Hawai'i has clear title to these ocean lands?
3. Where is the list of heirs belonging to these ocean lands of the project site?
4. Who was the consulting "Konohiki"?
5. Why was the native Hawaiian community input limited in scope?
6. What is your definition of cultural practitioner?
7. What is the psychological impact to the Kanaka Maoli?
8. Who made the determination that "Konohiki Fishing Rights" do not exist in the project area?
9. What other areas around kapae aina where Konohiki Fishing Rights do not exist?
10. Does the proposed project comply with the laws of the Kumulipo? If "yes" how? If "no" why not?
11. Who made the determination that fishing ko'a didn't exist in the project area?
12. How was that determination made?
13. How will the wild fish population be affected by this project?
14. What steps will be taken to protect the religious rights of the Kanaka Maoli?
15. What habitat and nesting areas will be destroyed?
16. What ecosystem is created by this project?
17. Why does the cultural assessment in the EA not address the po'e kanaka of today?
18. When will it be corrected?
19. Should native resources prior Western contact be protected?
20. How many islands have existing ko'a grounds ? Is there a need to protect it for the future?
21. What laws are written to protect endangered fish and sealife in Hawaii?
22. There is a lack of native Hawaiian input concerning the cultural assessment and psychological impact. Only one Kanaka Maoli gave input in the DEA. When will native input be taken?
23. How will the Kanaka Maoli benefit from this project?
24. Why should ceded lands belonging to the Hawaiian people be leased to this project? Is a ceded lands lease legal?
25. What gives a private corporation the right to create this type of project in the Kingdom of Hawai'i?
26. What Ahupuaa is in the project area?
27. What is meant by "sustainability "?

28. Why is it necessary for the project to provide fish for the rest of the world? Is that being sustainable?
29. Please explain why it's necessary for Hawai'i to suffer the negative environmental effects of increased pollution on the people and ocean in order for us to feed foreign investors?
30. Is the project area under a Royal Patent? Has clear title been established?
31. What is the impact to the wild fish population when fish escape from the cages?
32. When will a cumulative impact study be completed on present and future impact of the project?
33. What guarantees will be given that the fish meal from other countries will not be contaminated and will not wipe out their fish resources to manufacture the fish meal?
34. Is there any violation in cultural assessment that contradicts Article 12 Section 7 of the State Constitution?
35. What is the parameter of the project site?
36. How does a biologist do a cultural assessment?
37. What is the county responsibility to the protection of the ocean resource and clean water?
38. What is the role of the State of Hawai'i to protect the ocean resource and clean water?
39. What pollution problems will be caused by this project?
40. What is the estimated hazards of the project?
41. How many applications have been made on this project?
42. Were there other DEA attempted only to have it withdrawn?
43. Who will be responsible for the oversight of this project? Will a Kanaka Maoli entity be contracted? How soon can a site visit be scheduled at the proposed user's expense?
44. How much fish will be reserved for Hawaiian use?
45. Has all pending violations against the parcel or project site been satisfied?
46. Has the previous owner and proposed owner been involved in other fish farm projects? Where? What references do they have?
47. Has there been a public hearing held on the island? If "no" when and where will it be scheduled?
48. What government funding are you receiving for this project? How much? Will you pay it back?
49. Clarify the issues and problems in the past regarding this project and/or type of project.
50. Were fishing and ocean practitioners notified of potential impacts on their gathering rights?
51. What companies will be providing the fish meal? What ties do they have to foreign countries where environmental and conservation laws are non existent?
52. What is Hukilau Foods Offshore Fish Farms' ho'okupu to the Hawaiian people?
53. How do you identify a cultural practitioner of the ocean?
54. Has ancient site assessments been made?
55. What steps are being taken to protect these areas?
56. Have the user done a cultural impact study of the area?
57. Who is the local fish meal source to provide fish food for the project?
58. What credentials do the cultural experts hired by the user have?
59. Are these experts cultural practitioners?
60. Will you extend the deadline on the DEA for us to digest your answers when received and allow comment on the DEA answers to our questions?
61. Has all tax obligations been met for the project site?

62. What is the proposed buffer for traditional gathering rights to fish around the cages?
63. What procedures are in place to guarantee transparency to review documents, reports and audits from the public?

The Draft Environmental Assessment for the proposed HUKILAU FOODS OFFSHORE FISH FARM, MAMALA BAY, OAHU HAWAII fails to provide adequate information and fails to answer critical questions. Your cultural assessment lacks credibility and truth. The Kanaka Council does not recognize the alphabet soup entities used to determine in the DEA to qualify cultural sites and areas. The Kanaka Council Moku O Keawe demands that a full EIS which would include a "Cultural Impact Assessment" be completed before granting any further expansion.

The Kanaka Council believes the State of Hawai'i is obligated to protect all rights as stated under Article XII, Section 7 of the Constitution of the State of Hawai'i. This is not a sustainable practice for Hawaii to export Moi to markets throughout the world. This project will have a negative impact on Hawaii's Kanaka Maoli, kamaaina, malihini and the ocean environment in trying to feed the world. This mentality must stop.

Respectfully Submitted,

Kale Gumapac, Alaka'i
Kanaka Council Moku O Keawe

HUKILAU FOODS
A GROVE FARM COMPANY

Name
Address

Dear Mr, Ms :

Thank you for your comments on the Draft Environmental Assessment (DEA) for the proposed expansion of the Hukilau Foods LLC (HF) State ocean lease two miles off Ewa Beach, Oahu. The carefully chosen HF site has been in commercial production of the native fish moi, for over seven years, without any significant issues arising with Federal or State agencies, native Hawaiians, and the general public. Moreover, the Company has well over 2000 days of observations at the existing and proposed expansion site on which to base it statements.

HF believes the general concerns you raise from your review of the DEA are adequately addressed in the Conservation District Use Permit Application (CDUA) and the DEA. We provide the following comments, clarifications and document highlights for your further consideration.

a. Wild fish populations

Important aspects of the effects of the expanded project on wild fish populations are discussed in the CDUA and DEA, including recruitment, stock escape, and fish aggregating characteristics. The farm will not have a significant effect on recruitment to wild populations of organisms considering the relative size of the farm and the large expanse of available natural habitat for reproduction and recruitment on the South Shore of Oahu.

To date, there has been no known escape of fish from HF cages. Concerns over potential for disease transfer to wild stock are addressed through rigorous stock testing and management procedures described in the DEA, as well as 24/7 site security through remote cameras. Since HF fish are genetically still wild fish and escape event would be similar to a stock enhancement event regularly conducted by the State.

HF has observed that the existing cage farm has attracted marine life and essentially has created a mini-ecosystem in what was relatively barren part of the ocean. These cage structures generally attract a host of benthic invertebrates and algae, as well as, benthic, reef and pelagic species of fish; similar to the State managed Fish Aggregation Device (FAD) system. Broadly, HF experience indicates the mini-ecosystem is a positive addition to the ocean and the cage system will come into dynamic balance with the much larger and diverse ocean environment.

b. Conflicts with marine mammals, endangered species and fishers

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Marine mammal and protected species issues, as well as, site use by local fishers are adequately discussed in the CDUA and DEA. Regarding marine mammals and those species protected by Federal and State law, these species have not been observed at or in the vicinity of the farm, with one exception, green sea turtles. Green sea turtles have been observed on occasion at the HF site. They remain in the area from a few minutes to a few hours, and are not affected by the farm activities.

There have been no conflicts with the few fishers who wish to troll or drift fish at the site and that use will continue. As stated, anchoring of boats in the lease area has been discouraged and a more formal declaration is being requested for the expanded site. The boating public and fishers in particular, have been very supportive and HF has cooperated with experienced commercial fishers to ensure big eyed scad fishing can take place without affecting operations.

c. Feed concerns

The particular fish feed concerns are not specified. HF utilizes a cost-effective, commercially available feed that has the composition of 43% crude protein, with an average conversion ratio of 2 lbs feed to 1 lb fish. This ratio is normal for a relatively new aquaculture species and can be expected to be improved through ongoing research. As HF explained, feeding on the farm is carefully controlled and observed to minimize wastage. According to HF's feed manufacturer, Skretting, fish meal material is sourced from regulated and monitored fisheries that are sustainable.

d. Cultural resource impacts

The particular cultural resource impacts are not specified. HF reiterates that it has been in operation at its existing site two miles offshore for seven years and with the previous research project included, ten years. There have been no cultural resources issues to date and none are anticipated with the expansion. There are no artifacts in the lease area, which averages 150 ft. deep. The HF cultural assessment found no concerns and included consultations with the Office of Hawaiian Affairs, the Ewa Beach Neighborhood Board, and a very knowledgeable, Leeward Oahu, Hawaiian cultural practitioner and activist who confirmed the conclusions.

e. Economic impacts

The economic impacts concerns on Hawaii and mainland markets are not specified. HF believes the economic impacts on Hawaii are overwhelmingly positive; including much needed job generation; increased availability of fresh, high quality seafood; and taxes, lease rents and secondary industry expenditures paid yearly. HF fails to see the relevancy of your concern with U.S. markets, other than to point out that Hawaii export production can have a positive impact by reducing America's $ 8 billion seafood trade deficit.

You raise several other concerns regarding the HF project and its environmental review addressed below. HF has satisfactorily considered cumulative impacts and expectations are that the expanded lease acreage will accommodate the expanded production capacity given the physical nature of the site, i.e., the relatively strong and consistent currents, the barren sandy substrate suitable for anchoring and the lack of significant marine life in the area. Moreover, a comprehensive, State approved water and substrate quality monitoring program will provide the feedback to sustainably manage the expanded project. Further, the DEA provided sufficient description and detail for interested public agencies and the general public to understand the expanded project and HF believes an Environmental Impact Statement (EIS) is not required.

In addition, regarding seeking community inputs, we highlight the project is undergoing statewide review through the permit process. HF consulted with the Leeward Hawaiian community through the Ewa Beach Neighborhood Board and a very knowledgeable Hawaiian cultural practitioner, as well as, making presentations to the Office of Hawaiian Affairs (OHA), the leading Hawaiian organization in the state. Note, OHA has established a policy to encourage native Hawaiians to become involved to the fullest and highest extent possible in offshore fish farming. Further, it is Hawaiian custom that persons talk to the affected community about a project, in this case, the Leeward community, before beginning the project planning and HF respects that custom.

Finally, please also note that as an Ocean State, it is Hawaii's stated policy that State marine waters can be utilized for commercial, for-profit open ocean aquaculture for the economic benefit of its citizens. The State implemented a rigorous permitting process to govern the siting and expansion of offshore aquaculture in the Hawaiian Islands. The long-range goal is to expand and diversify the Hawaii economy through nurturing aquaculture, a local aquatic food production industry that is economically beneficial, environmentally friendly, socially accepted and culturally appropriate.

We appreciate your participation in the environmental review process.

Sincerely,

John R. Cates
President

HUKILAU FOODS
A GROVE FARM COMPANY

July 21, 2009

Ms. Marianne Cufone
Director, Fish Program
Food and Water Watch
1616 P. St. NW, Suite 300
Washington, DC 20036

Dear Ms. Cufone:

Thank you for your review of the Draft Environmental Assessment (DEA) for the expansion of Hukilau Foods LLC (HF) State ocean lease. The carefully chosen HF site has been in commercial production of the native fish species moi, for over seven years, without any significant issues arising with Federal or State agencies, native Hawaiians and the general public. Moreover, the Company has well over 2000 days of observations at the existing and proposed expansion site on which to base it statements.

HF believes the majority of your issues and concerns are adequately addressed in the Conservation District Use Application (CDUA) and the DEA. We provide the following comments, clarifications and document highlights for your further consideration, more or less in the order they are presented in your letter.

Overarching Concerns with Open Ocean Aquaculture

You make a host of general comments and criticisms of open ocean aquculture, which we briefly address with the following general responses.

a. HF agrees open ocean fish farms do generate waste nutrients, as do all controlled animal production situations. However, generally the tropical open ocean's high current, well mixed , low nutrient background environment has demonstrated in Hawaii and elsewhere its physical and ecological capability of dispersing ,assimilating, and recycling the fish nutrients; returning them to the food web. This is not unlike natural processes of nutrient recycling. Moreover, equating the assimilation capacity of temperate climate, sheltered water cage systems with those of exposed, open ocean cage systems is inappropriate and not comparable.

b. You present speculative research conclusions concerning mercury accumulation in wild salmon from one study and note escaped fish from farms are a general concern. Our understanding of the recent scientific literature is the mercury scare headlines with salmon feeds and farmed fish flesh has been corrected with larger, more statistically valid sample sizes and this research has shown levels are below actionable values.

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Further, escapes are an individual farm management issue and have not occurred with HF's moi.

c. HF understands the general concern that over use of antibiotics in our society can lead to development of harmful resistant strains of bacteria. HF does not use antibiotics in its feed.

d. The debate over the growing use of fish meal and fish oil for commercial aquaculture production will continue as the industry moves to expand and competition for feed stock among livestock sectors expands. Notably, the industry and its aquaculture proponents are directing major research and development efforts towards reducing the use of fish meal and oil by improving feed conversion, reducing wastage and identifying non-fish meal protein and fat sources to use as substitutes. The efforts for salmon have achieved great results in the last decade and improvements in other farmed species should follow.

e. HF strongly believes that the U.S. aquaculture and fisheries industries can co-exist and continue to be two sustainable domestic sources of seafood for the American consuming public, reducing the seafood trade deficit. Both industries generate significant jobs and revenue through the production, distribution and sale of products. Moreover, there are an increasing number of examples of aquaculture-enhanced fisheries, as well as fishers becoming aquaculture farmers, e.g., Northern Florida.

Overview of the Proposed Expansion

You discuss a brief overview of the HF expansion plan and HF comments as follows:

You compare fish waste from a fully stocked moi farm with the amount of untreated sewage generated by the city of Boston, but offer no data. HF notes that comparing cold blooded fish waste to human sewage is inappropriate, due to the human health implications of sewage. Wild and cultured fish waste is naturally recycled constantly and rates depend on the site assimilation capacity-the tropical oceans being the highest.

We note that should the phased production reach its target level of 5 million pounds in three years: the standing stock biomass will consist of fish at all life stages (juvenile to market sized, thus limiting biomass) and be required to meet the State Department of Health, NPDES/ZOM permit requirements. Further, massive amounts of water flow through the cages hourly to disperse and aid assimilation into the food web, for example at a speed of ½ kt., a single 3000 m^3 cage will have 384 million gallons of seawater flow through it.

Food and Water Watch (FWW) restates HF operational details, apparently as matters of concern, but without detail. As stated, HF has operated for over seven years at its existing site without incident or issue. HF is not aware of any "dead zone" or a Barbers Point Sanctuary in Mamala Bay. The farm has had no impact on the directly

shoreward coral reef (shown by previous sampling) due to current patterns. The distant dumping site has had no impact on the farm.

The formal restriction on no anchoring of boats - boats may transit over the cages at will- is requested because of public safety (water is too deep for recreational diving), staff safety, operational (don't want anchors dropped on cages or the mooring system) and insurance liability concerns. Lastly, we note the portion of the highly secure mooring system that contacts the substrate covers just 0.025 acres of the 61 acres requested.

Comments

a. Cumulative Impacts

HF finds your comments on cumulative impact of the proposed farm expansion as largely unsupported and inappropriate for consideration in the DEA. Larger questions of impacts of non-point source pollution of Mamala Bay by urban Honolulu are beyond the scope of this specific site expansion proposal. Seven years of operation and monitoring data has demonstrated no significant impacts, while meeting water quality standards. Furthermore, calling for comment on regional water quality impacts of two existing farms and several potential farms on another, distant island, is un-necessary and inappropriate.

b. Water Quality and Benthic Impacts

HF believes the CDUA and DEA adequately address all the required water quality and benthic topics and issues and an EIS is not required to expand the project. HF comments on your impact concerns follow:

- HF stands by its analysis and conclusion that the impacts of the expanded project should remain insignificant and the Company should be able to secure an appropriate NPDES/ZOM permit and meet State receiving water standards, as it has for seven years. Monitoring of the existing operation described in the DEA demonstrates increases over ambient water quality values are difficult to detect due to the short residence time of the ocean water in the cage (very high flow rates), large volumes (millions of gallons) of ocean water available for mixing, and high assimilative capacity of the nutrient poor, Oligotrophic Hawaii ocean environment. Moreover, these conditions will apply to the expanded production (same stock densities as existing farm) and production area (larger area) and dispersion and assimilation will be enhanced further by the re-alignment of the layout to increase turbulent mixing.
- HF utilizes no chemicals to clean it cages. Experience indicates cleaning cages as described on a 2 month rotation keeps biofouling to a minimum. Experience further indicates the limited amounts of pulverized material are readily dispersed by currents and are assimilated and re-enter the food web. The benthic monitoring results support this statement.

- HF considers the balanced cage ecosystem that develops and is partially supported by cage feeding and cleaning a positive impact not unlike artificial reefs or FADs deployed by the State.

- HF did a visual diver survey of the expansion area and included a representative photo of the bottom in the DEA. HF believes, considering the uniformity of the ocean bottom in Mamala Bay, that our statements are valid. Further, before the required benthic monitoring occurs in the expanded area, baseline data will be collected.

- HF stands by the statement that the shifts in polychaete species under the cages to more opportunistic species are not ecologically significant and regulatory agencies have agreed. The plasticity of the species composition and the tendency to return to a control site species composition when cages were empty for several months, was determined by the University of Hawaii and cited in the DEA. It is a common occurrence around the Islands that after rain events and the subsequent non-point source discharge , polychaete species composition and abundance shifts to opportunistic species.

- HF does not feel modeling of water quality impacts is necessary at this time. The Company is familiar with both the AquaModel and to a lesser extent the Stanford model. Our understanding is the Stanford model was an experimental computer simulation with not field validation. The AquaModel work with the Hubbs Sea World project strongly supports the statements and conclusions concerning ocean mixing and recycling in the DEA.

c. Escaped Fish

HF reiterates there have been no known escapes of fish from its cages. This in part can be attributed to the high degree of professionalism of the HF staff and their daily presence on site. It can be also attributed to moi being afraid of the divers when they enter the cage. Further, HF reiterates that the moi stocked, a native species, are genetically the same as wild stock. Finally, it is apparent that HF management measures have eliminated escapes as an issue.

d. Forage Fish Populations

HF reiterates that the feed conversion ratio for moi is 2 lbs. feed to 1 lb. of moi, which is acceptable for a relatively new aquaculture species (see also earlier comments on the fish meal issue and aquculture). Feed is purchased from Skretting, a large and well respected feed manufacturer The Company has a documented policy that states, "Skretting will only source fish meal and fish oil from fisheries that are regulated and monitored as being sustainable."

e. Disease

HF reiterates that the Company is diligent in applying best management practices to its operations; including inspection of fingerlings for disease prior to stocking, maintaining controlled feeding rates, utilizing acceptable stocking densities and regularly removing of fish mortalities and cage cleaning. Its new hatchery plans to adopt biosecurity procedures utilized at large European facilities; including highly controlled movement of staff and visitors. Finally, plans are to continue to test fish at three stages in the growout process and divers will be observing fish condition daily.

FWW comments concerning salmon are not relevant to this project.

f. Reasonable Alternatives

HF stands by the detailed evaluation of alternatives as adequate and reasonable. The goal for Hawaii open ocean aquaculture for all concerned is plan and implement an environmentally and economically sustainable project. Large-scale, land-based culture of marine species is in the early stages of technology development and marine recirculating systems are developmental and not a viable option, and don't warrant evaluation.

Seafood market information and moi market information are presented under Economic Characteristics.FWW denigrates the increased hiring of fourteen people, for a total staff of 25, and shows a gross ignorance and insensitivity to the Hawaii economy and its employment needs. Fully 85 % of companies in Hawaii employ 9 or fewer people and jobs at HF are exactly the high wage and high tech positions the State is encouraging. Further, it is well known that the nature of technology development is continuous improvement.

g. Endangered Species

HF stated in the DEA the farm has 10 years of observation and rare, threatened and endangered marine mammal species are rarely seen in the vicinity and have never been observed at the site. The exception is green sea turtles, which are seen two or three times a year, at the site. Turtles are transient and are not affected by farm activities. An incidental taking permit will not be needed due to the lack of species presence.

h. Economics Impacts

FWW misinterprets and misrepresents statements in the DEA regarding the economic impacts of the expanded project. The DEA states the expansion will impact the Hawaii economy many ways, including through increases in: employment opportunities, product availability in the local marketplace, expenditures in the local support industries, and opportunities for Federal research dollars. The Company will invest up to $13 million from a combination of private funds and a Federal fisheries loan,

which must be paid back. The research project mentioned in the DEA, demonstrated technical feasibility and private investment flowed in to expand to successful commercial scale; following a routine economic development model.

Regarding the employment comment, see HF's earlier comments about FWW's lack of understanding of the Hawaii economy. We highlight that the CDUA and DEA adequately describe the local seafood industry supply (80% imported) and demand (50 million lbs. a year)and the annual supply of moi from fishers has averaged only 700 lbs. a year.

As described, HF is requesting limiting access to the lease area by restricting anchoring of boats. Trolling and drift fishing and transit of boats over the submerged cages will continue with the expanded operation. HF reiterates after seven years of operations no access issues have been raised by agencies or the public.

The anticipated impact of new supply on the price of moi is it will go down. HF has stated it will fill the demand for moi in Hawaii, before exporting and has excellent community support for this approach (see DEA).

i. Historical and Cultural Resources

HF has conducted a Cultural Resources Assessment that concludes there are no Hawaiian cultural resource issues associated with the expanded site. This conclusion was developed from the following input: 1) There have been no complaints in 10 years of operation; 2) HF sought council of a highly knowledgeable, Leeward side, Hawaiian cultural practitioner, activist and fisher, who would be aware of any issues; 3) HF met with the Ewa Beach Neighborhood Board for input; and ,4)HF met with the Office of Hawaiian Affairs (OHA), the leading Hawaiian organization in the State, for input. We note OHA has established a policy to encourage native Hawaiians to become involved to the fullest and highest extent possible in offshore fish farming.

The Company is fully aware of the cultural significance of sharks to the Hawaiian people. Sharks have not been an issue to date and HF will continue to treat the animals with appropriate respect and use non-lethal means of management should they become an issue.

j. Project Benefits

HF disagrees and reiterates the CDUA and DEA clearly support the conclusion that the expanded project is environmentally and economically sustainable. The project is receiving no Federal or State subsidies (See also earlier comments on FWW inaccurate comments on employment and fishing). Purchasing of supplies currently occurs locally and will continue to occur locally as the project expands. Special equipment will be sourced from out-of-state, if not available in-state, as is normal for Hawaii businesses. HF reiterates that Hawaii imports over 80% of its seafood and the moi fishery produces only 700 lbs. a year, so demand for this Island favorite is clearly there, as shown in the DEA project support letters.

k. Conclusion

As stated previously, HF has submitted a comprehensive DEA that addresses the required information for government agencies and the public to make informed decisions about the proposed project. An EIS is not required and would add nothing substantive to the permit process. Concerns raised by FWW have been shown to be inaccurate or inappropriate for Hawaii or adequately covered in the CDUA and DEA, however they will be duly considered in preparation of the final document.

We appreciate your participation in the environmental review.

Sincerely,

John R. Cates
President

HUKILAU FOODS
A GROVE FARM COMPANY

Mr. Kale Gumapac, Alaka'i
Kanaka Council Moku O Keawe
HC 2 Box 9607
Keaau, Hawaii 96749

Dear Mr. Gumapac:

Thank you for your comments on the Draft Environmental Assessment (DEA) for the proposed expansion of the Hukilau Foods LLC (HF) State ocean lease two miles off Ewa Beach, Oahu. The carefully chosen site has been in commercial production of the native fish species Moi for over seven years, without any significant issues arising with Federal or State agencies, Native Hawaiians, and the general public. Moreover, the Company has well over 2000 days of observations at the existing and proposed expansion site to base its statements.

You indicate that after review of the DEA that there are substantial concerns and rights not being addressed. You present a list of questions and issues that are the subject of these concerns and indicate the need for these to be addressed and answered before the DEA is approved. HF will address these matters in the numbered order you present them, and provide the following comments, clarifications and document highlights for your further consideration.

1. The Cultural Resources Assessment consisted of: interviewing Mr. William Aila of Waianae, Oahu, a recognized expert on Hawaiian culture and a cultural practitioner, activist and long-time fisher in the area; presentations to the Ewa Beach Neighborhood Board; a limited search of the relevant literature; and meetings with the Office of Hawaiian Affairs. In addition, over the years there were meetings with native Hawaiian cultural practitioners, such as Eric Enos, Charles Maxwell, Kai Kalama, and many other individuals and native Hawaiian groups.

2. It is our understanding, per the Hawaii Revised Statutes (HRS), that the State of Hawaii owns all the Conservation District Lands. All the submerged lands are Ceded Lands and are in the Resource sub-zone. Chapter 190 D, HRS, as amended, allows the State to lease submerged lands.

3. As far as we know, there are no heirs to the ocean lands occupied by the existing and proposed sites, which are two miles offshore.

4. We understand there are no konohiki for this site two miles offshore.

5. We understand it is Hawaiian custom to ask for input from the community in which the project is to be located, which is what HF did for purposes of the cultural assessment. This was in addition to the statewide environmental review of the project, which you are responding to.

6. HF's general understanding is that a Hawaiian cultural practitioner is a person of native Hawaiian heritage that incorporates traditional and cultural values and practices into their life.

7. Evaluation of psychological impacts on Native Hawaiians is beyond the scope of the DEA.

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8. HF consulted with Mr. Aila. Also, Chapter 187 A-23, HRS, states " Konohiki rights consist of fishing grounds from the reefs and where there happens to be no reefs , from the distance of one geographical mile seaward of the beach at low watermark ..." As such the HF site is beyond the traditional boundaries of the konohiki.

9. HF does not understand the specific question; however the project is located beyond the legal definition of konohiki.

10. The project complies with the laws of the State of Hawaii and the United States of America, as required.

11. HF has operated for 10 years at the site without this issue of ko'a arising. Mr. Aila and other input gathered indicate no ko'a are present in the existing and proposed areas.

12. As indicated above, from HF's long experience and Mr. Aila's expertise and knowledge of the South Shore of Oahu.

13. The DEA discusses impacts on the wild fish population in the area and vicinity; including recruitment, stock escapement, and fish aggregating characteristics. Briefly, the farm cage will not have a significant, long-term effect on recruitment to wild populations considering the relative size of the farm and the large expanse of available natural habitat for reproduction and recruitment in Mamala Bay and the South Shore.

As pointed out in the DEA, there has been no known escape of fish from HF cages. Concerns over potential for disease transfer to wild stock are addressed through rigorous stock testing and management procedures described in the DEA, as well as 24/7 site security through remote cameras. Since HF fish are genetically still wild fish, an escape event would be similar to a stock enhancement event regularly conducted by the State.

HF has observed that the existing cage farm has attracted marine life and has created a mini-ecosystem in what was a barren part of the ocean. These cage structures attract a host of benthic invertebrates and algae, as well as benthic, reef and pelagic species of fish, similar to the State managed Fish Aggregation Devices (FADs). Broadly, the HF experience indicates the mini-ecosystem is a positive addition to the ocean and the expanded cage system will become in dynamic balance with the much larger and diverse ocean environment. For more details see DEA.

14. Protection of religious rights is the responsibility of both the Federal government and the State of Hawaii. HF will respect all laws regarding religious rights.

15. Sea birds have never been seen at the HF site. No ocean habitat will be destroyed, but the cage mooring anchoring system will cover 0.025 acres of ocean bottom.

16. Based on HF experiences with the existing farm, the expanded farm will continue to attract organisms and become a larger mini-ecosystem of swimming and attached organisms in balance with

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the ocean environment. It is our experience that this is a positive benefit. See DEA, particularly Appendix 4.

17. The Cultural Resources Assessment addresses the topics relevant to the HF site.

18. HF believes the Cultural Assessment is satisfactory as written, but will consider Kanaka Council's comments in preparing a final EA.

19. HF has no formal opinion on your question. However, HF generally believes that protection of cultural resources is a matter for Federal and State government. HF will respect cultural resources according to the governing law.

20. This information on statewide ko'a is not required for the Cultural Resources Assessment of the HF site. Please refer this protection question to the appropriate Federal and State agencies.

21. HF refers you to the appropriate sections of the Hawaii Revised Statutes, which are on line.

22. HF believes that the Cultural Assessment has gathered sufficient information to conclude there are no cultural issues with the expansion site, located two miles offshore in 150 ft. to 200 ft. of water.

23. Moi grown at the HF site will benefit Kanaka Maoli in many ways. First and foremost by providing a traditional fish grown locally that is important to their good health. Second, it supports OHA's stated policy for native Hawaiians to be involved to the fullest extent in offshore aquaculture. Third, once again to encourage Kanaka Maoli to utilize the ocean in a sustainable manner to produce food. In addition, HF will continue to supply seed stock to both native Hawaiians and the State for restocking.

24. The State of Hawaii and the State Legislature have deemed it in the public interest and the policy of the State to lease State marine waters for commercial, for-profit open ocean aquaculture. As previously mentioned, all State marine waters are ceded lands and subject to relevant law.

25. See answer to no. 24.

26. The nearest Ahupua'a is Honouliuli.

27. There are many acceptable definitions of sustainability on the Internet and elsewhere. HF supports the "Peoples Definition" found in the Hawaii 2050 Sustainability Plan. It states: "A Hawaii that achieves the following:

- Respects the culture, character and beauty and history of our state's island communities.
- Strikes a balance between economic, social and community and environmental priorities.
- Meets the needs of the present without compromising the ability of future generations to meet their own needs."

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28. HF does not believe it needs to provide fish to the rest of the world. It will continue to supply the people of Hawaii first, with quality product. HF will sell its product to other markets to remain economically viable, while still supplying the people of Hawaii with moi.

29. As described in the DEA, we anticipate the HF expanded project will be environmentally and economically sustainable and have no significant impact on the Hawaiian ocean environment. Investment to the project is local.

30. HF has clear ownership of the existing lease and the State has legal authority to grant the expanded lease.

31. There have been no escapes of moi from the HF cages to date. If there was an escape, it would be similar to a stock enhancement event regularly conducted by the State, since HF fish are genetically the same as wild fish.

32. Cumulative impact of the project has been assessed in the DEA.

33. No guarantees of this nature can be given by HF. However, HF notes that its feed supplier, Skretting Co., states that it only sources fish meal and oil from sustainable sources and ingredients are tested for contaminants.

34. No, not to HF's knowledge.

35. If you are referring to the size of the expanded site it will be 61.59 acres.

36. HF does not understand the question. Appropriate persons were contacted and appropriate documents were reviewed to prepare the Cultural Resources Assessment.

37. HF refers you to the Department of Planning and Permitting of the City and County of Honolulu for a detailed response. Briefly, it has no jurisdiction two miles off shore.

38. HF refers you to the Hawaii Revised Statutes and web sites for the Dept. of Agriculture, Dept. of Land and Natural Resources (DLNR) and Dept. of Health (DOH).

39. HF anticipates no problems as described in the DEA. The expanded project will secure a new National Pollution Discharge Elimination System (NPDES) permit and Zone of Mixing (ZOM) and meet State receiving water standards for point source discharges.

40. There are no estimated hazards for the project.

41. This permit application for project expansion is the first.

42. No.

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60. No. HF will follow the process.

61. Yes.

62. There is no need for a buffer two miles offshore.

63. Required reports to the oversight agencies will be public documents.

In conclusion, HF has provided answers to your questions and refers you to the DEA and Conservation District Use Application (CDUA) for details. We will consider your comments further in making appropriate changes to the DEA. HF does not believe an Environmental Impact Statement (EIS) is required given the detailed DEA that has been prepared.

HF believes the Cultural Resources Assessment is sufficient to define the project's lack of impact on resources and traditional and customary native Hawaiian practices. We note that the Office of Hawaiian Affairs has established a policy to encourage native Hawaiians to become involved to the fullest and highest extent possible in offshore fish farming and HF looks forward to cooperating in that endeavor. Further, the Company reiterates it intends to satisfy local demand before considering exporting.

We appreciate your participation in the environmental review process. You have expressed your thoughts on many important issues which I often discuss with my own family, the Lonokapu's, from Hilo. I would welcome the opportunity to sit down with you one-on-one to discuss my views.

Sincerely,

John R. Cates
President

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